THE BUILDER

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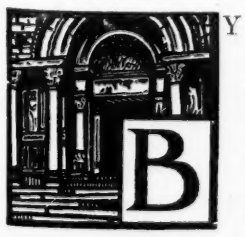
The late Baron de Geymüller.



BY the death of Baron de Geymüller, which is announced in our Obituary Column of this week, the architectural world of Europe loses one of the keenest and most refined intellects which has in our time been applied to the study and elucidation of architectural subjects.

Though, we believe, originally educated as an architect, Henry de Geymüller, who was not dependent on the practice of the profession as a means of livelihood, distinguished himself especially by his wide knowledge of what may be called documentary history of architecture, as preserved in the numerous original drawings by eminent architects — those of the Renaissance period especially, which are to be found, some in public libraries where they are easily accessible, though little consulted; others in private or little known repositories, which are not even looked for except by those who may have suspicions of their existence, or by those who think it worth while to ransack every probable or possible place for architectural documents. Among such de Geymüller was pre-eminent; indeed it may be said that the main work of his life was to unearth unpublished architectural studies and drawings, and to apply them to the purpose of throwing light on obscure points in regard to ancient architects and architecture.

The subject of original drawings of architecture is of course so large and complicated that one man could only deal with a portion of it. We none of us know what matters of interest might not turn up from a systematic examination of even the official records of every city dating back as far as the Renaissance; and it was one of the objects of de Geymüller's life to awaken a general interest in this subject, and to secure the assistance of other enthusiasts in following up this trail. In a long letter written in 1892, which is preserved in one of the "Pamphlet" volumes in the library of the Institute of Architects, he specially urged the importance of finding out and preserving all sketches and studies by the great masters of architecture, observing that their most celebrated designs had in many cases either never been carried out, or had been altered and spoiled in execution when carried out by inferior men who were their successors. And this, he said, could only be adequately done by a combined effort on the part of many seekers each giving his assistance in the work, more especially in research into the contents of official libraries and museums. The importance which he attached to this mission is characteristically indicated in the sentence which he prefixed as "Motto of this letter":—

"Great artists are a gift from Heaven. To preserve their original studies, precious for our instruction, seems a duty towards God and man. *What ought to be done can be done.*"

It is to be hoped some of those who have architectural knowledge and leisure combined may keep in mind Baron de Geymüller's words, and endeavour to carry on the work of bringing to light and preserving ancient architectural drawings, of which there must be so many in existence still unknown.

Of the work which de Geymüller did in looking up and profiting by ancient architectural records, the most remarkable and the most valuable is a great book, accompanied by an atlas of plates, under the title "Projets Primtifs pour la Basilique de Saint-Pierre à Rome," published in 1875, with French and German text in parallel columns. This was an attempt to co-ordinate and illustrate the various schemes and sketches that had been made for the plan and treatment of St. Peter's, before it assumed its final form under the hands of Michelangelo; or, at least, what should have been its final form, had not Maderno been allowed afterwards to spoil it by his addition to the nave. It is worth while to turn over the atlas of plates once more and make a rapid survey of its contents. Bramante holds a large place among them. There is an elevation of his proposed cupola; a rather low dome of which the exterior lines are evidently suggested by those of the Pantheon, with similar stepped-out courses of masonry in the lower portion, and a dangerously heavy-looking lantern at the crown. A sectional diagram is given showing its conditions of stability, apparently worked out by the author. Bramante's general idea was that of a central dome surrounded by four smaller cupolas, and with towers at the extreme angles of the plan. Among Bramante's sketch plans, given in facsimile, is one for the treatment of the central area which would have had a very fine effect. He shows four immense piers, and within them a complete circle of huge columns, two columns being engaged to each pier, but so placed as to continue the circular ordinance of columns unbroken, as viewed from the centre of the space under the dome. Then there is a sketch for a plan showing three great apses, one at the end of the choir and one at each transept, the whole plan being approximately a square. Another square plan is sketched with four apses, one in the centre of each face. Then there is a sketch plan showing this square plan of church enclosed in a vast square *temenos* with a portico in the form of an apse externally, and a colonnade internally on the chord of the apse, on each face of the enclosure. But Bramante leaves also a sketch plan for a long nave, still

with the three apses to choir and transepts, and comparatively narrow aisles divided from the centre by a double colonnade, interrupted by large piers at intervals. Following on these is Sangallo's plan, with a longer nave and piers with niches, and one by Giocondo with a still longer nave, Gothic rather than Classic in proportion, apparently founded on Sangallo's plan, and a kind of extension of it. Two or three of Sangallo's elevations for his proposed treatment appear; one of them with very weakly treated towers with spirelets at the angles, which is of interest as showing, along with Bramante's proposals, how the idea of angle towers for St. Peter's had been prevalent throughout the early history of the designs, and had been, as Mr. Tavenor-Perry has recently reminded us, actually carried out by Bernini, though very badly, and in a shape of which one may say that it is fortunate that it was condemned and demolished after erection. Another elevation of Sangallo's, with cupolas instead of spires on the angle towers, is much better, but the design of his central dome in each case wants dignity, and the lines are weak.

One of the most interesting things among the plates is a sheet of small perspective sketches by Leonardo da Vinci for groupings of a central dome and smaller cupolas around it. They are nearly all based on the idea of a compact square plan, forming a pyramidal mass with a great dome in the centre. They are sketches exceedingly suggestive to the architect. Of great interest also are one or two reproductions from old plates showing St. Peter's in progress, or rather, at a standstill at the critical portion of its history; for it was many years after the main piers were built before anyone dared to attempt the crucial business of doming the vast empty space between them. And so here we have a picture, "Etat des Travaux, 1520-1536," showing the vast masses of crude masonry of the four great piers, no architectural clothing yet imposed on them; the four great arches with coffered soffits turned between them; the whole standing, a grim pile of inchoate building, amid a chaos of surrounding and half-demolished smaller buildings: a strange chapter in the almost romantic history of the evolution of St. Peter's.

This history and the illustration of St. Peter's is de Geymüller's central and most important work. He also issued, in 1898, an important and largely illustrated work, in German, on "Die Baukunst der Renaissance." But perhaps his best work next to the St. Peter's, was his large folio on "Les du Cerceaux," containing the results of a great deal of investigation into the history of the Du Cerceau family, and a good many interesting illustrations from original drawings. Among the contents of the volumes labelled "Pamphlets" in the Institute Library are several short essays, collected from different publications to which he had contributed; among them an important essay on Milan Cathedral, contributed to the *Gazette des Beaux-Arts* at the time of the competition for the proposed new façade, in which he upheld the view that the cathedral should have had, and was originally intended to have, towers on the western façade, and that Brentano's first design for the façade, with towers and slender spires flanking it, was much better than his second and accepted design without towers; a judgment in which we entirely concur. It would seem, from early records, that a medley of foreign architects were consulted as to the work; and it is on record that one architect, a German, proposed to cover the whole five aisles under one vast roof; a project which fortunately did not find favour.

In spite of his German-looking name, and of the fact that he had for many years made Baden-Baden his home, Baron de Geymüller was a Frenchman both (we believe) in nationality and in his character and sympathies. He was a most accomplished linguist—French, German, Italian, or English seemed to come all the same to him; his letters in English, if not exactly like those of a native Englishman, were all the more picturesque and expressive from their slight occasional touches of a foreign element in expression. He was in all respects a man of most charming and sympathetic character, welcome wherever he went, and will be long remembered and regretted by those who had the privilege of his acquaintance.

THE LOCAL GOVERNMENT BOARD REPORT.

ONCE again that compendium of statistical information, the Report of the Local Government Board, is in our hands, but this thirty-eighth Annual Report is less bulky than its predecessors owing to the Report on the Poor Law, the Unemployed Workmen Act, and Old Age Pensions having been issued separately in August last (see the *Builder*, August 28).

Possibly the increase that has taken place in the local indebtedness in rather less than thirty years conveys some idea how great is the expansion of local government. In the years 1879–80 the total outstanding loans of local authorities in England and Wales amounted to 136,934,070*l.*, representing a proportion of 17·77 as compared with the national debt of the United Kingdom. In the years 1906–7 this had increased to 494,487,512*l.*, an increase of 11,504,325*l.* on the previous year, and represented 45·69 per cent. of the national debt, although that debt has increased by 8½ millions over the same period.

In 1899 the rateable value of all rateable hereditaments in England and Wales was 175,622,758*l.*, and in 1908 it was 212,757,450*l.*, whilst the average amount of rateable value per head of the estimated population in England and Wales, including London, is 6*l.* 0s. 5d. There is a fascination in figures such as the above, with which this volume teems, but we are compelled to leave them and merely to glance at one or two matters given in detail which are likely more especially to interest our readers.

Water Supply.

A subject of the greatest importance always dealt with in a most interesting manner in these Reports is the Metropolitan Water supply. The magnitude of the operations undertaken by the Metropolitan Water Board can be easily apprehended from a table supplied in Mr. Perrin's Report, which shows that the total quantity of water supplied for domestic and other purposes in the year ending December 31, 1908, was 81,902,655,555 gallons, an average daily supply of 223,777,747 gallons to 1,079,808 houses, representing a population averaging 6,998,051 persons, or 31·98 gallons per head per diem. The quality of the water supplied seems to have been fairly maintained, and extracts from the report of Dr. Houston as to the results of his research work are given in the Report. The importance of the storage of water is much dwelt upon as the result of these researches. Dr. Houston finds that although as a counsel of perfection water should be stored for one to two months, possibly four weeks may provide a sufficient margin for safely, and to render the period of storage more uniform throughout the different districts he recommends that the policy of intercommunication which is being applied to filtered water should be extended to stored water; but he sounds a note of warning against adequate storage being allowed to afford a pretext for less careful processes of filtration. These observations of Dr. Houston lead us to see what steps have been taken to secure more adequate storage of water. As regards the water abstracted from the Thames, in 1892 the storage amounted to 496 million gallons; by the end of 1908 this had been increased to 6,345·5 million gallons, and when the new reservoir at Island Barn is completed the available storage in the Thames Valley will be nearly 7,500 million gallons.

As regards the Lea, in 1903 the storage capacity of the Eastern Works was increased from 1,200 to 2,400 million gallons, and additional reservoirs of an aggregate capacity of 5,300 million gallons have been sanctioned by Parliament. Eighty per cent. of the water supplied to the Metropolis is derived from the Thames and the Lea, and these rivers, when in flood, show a considerable increase in impurity, especially the Thames; therefore the question of storage has some bearing on the fact, apart from the aspect of quality, that the demand for water is at its height when the supply is usually low during summer droughts. Mr. Perrin's Report should be studied by all interested in the question of water supply, as it contains matter of considerable interest and importance; but we must leave the subject, only adding one word on the question of constant supply. The number of houses under constant supply has been increased by 15,578, making the total 1,057,610, or about 97 per cent. of the number supplied; but we find many of the observations contained in last year's Report on this subject repeated in the present volume, the obstacles to the perfection of this desirable system being imperfect house fittings, insufficiently covered mains, insufficient cisterns, and the difficulty of controlling waste.

Highways and Roads.

The Report states that next to Elementary Education the largest separate item of expenditure in the accounts of County Councils other than the London County Council is in respect of main roads. The mileage of main roads was 27,638, and the amount expended upon them, otherwise

than out of loans, in maintenance and improvement was 2,614,037*l.* The total length of roads, other than main roads, maintained by rural district councils was 95,158 miles, the expenditure, otherwise than out of loans, upon them being 2,048,929*l.* on maintenance and repair, and 55,288*l.* in improvement, 24,687*l.* being also expended out of borrowed money. The average expenditure per mile in maintenance and repair of main roads by rural district councils averaged 67*l.* 16s., and on roads other than main roads 21*l.* 11s. The expenditure on main roads by these authorities shows an increase of 6*l.* 18s. per mile since 1903, whereas the expenditure on other roads has remained nearly stationary; this must to a large extent be credited to motor traffic. The same observation applies to all main roads by whatever authority they were repaired—the cost has increased whilst the expenditure on other roads remains nearly stationary.

Housing.

As regards proceedings taken under Part II. of the Housing of the Working Classes Act, 1890, in respect of unhealthy dwellings, there was an increase on those taken in 1907. Outside London representations were made by 454 authorities, an increase of fifty-four, in respect of 6,790 houses, an increase of 1,865; closing orders were made in respect of 672, a diminution of sixty-two, 440 houses were ordered to be demolished, an increase of 217; but 1,655 houses were also either closed or demolished by the owners voluntarily, an increase of 687. The above figures do not, however, include proceedings taken by local authorities under the Public Health Acts or local Acts. The proceedings taken and expenditure incurred under Part II. of the Act in London closely approximate those of last year.

Public Health Act, 1907.

Remembering the extensive powers conferred by the above Act upon local authorities when they elect to adopt it, it may be interesting to note what steps have been taken in that direction. Orders were issued declaring certain provisions of the Act to be in force in 120 sanitary districts, viz., in twenty-eight municipal boroughs, eighty-seven urban districts, and four rural districts. In two cases alone was an order withheld on the ground that the local authority had not shown themselves willing to make use of their existing powers. The above is only a very imperfect survey of some of the matters contained in this volume, but it gives some idea of the vast number of subjects controlled and regulated by the Local Government Board; and if local indebtedness now represents nearly half the national debt, the annual expenditure from the rates equals about one-third of the national expenditure—in 1906–7 it amounted to over 50 million—and the local budget almost rivals in importance the national Budget.

GOLF PAVILION, PONTYPRIDD.—A new pavilion has been erected by the Pontypridd Club to replace the one burnt down last summer. Mr. A. Ll. Thomas designed the building, which comprises ladies' and gentlemen's rooms, over 100 lockers, kitchen, professional's repairing workshop and store, and a club assembly-room, together with the usual offices.

THE CANAL COMMISSION.

AFTER searching investigation the Royal Commission on Canals and Waterways have submitted their final report for Great Britain, the document being signed by sixteen out of the nineteen Commissioners. Four of these make some reservations, and the remaining three present independent dissentient reports.

The first and most important recommendation of the main report is that a central Waterway Board, consisting of three or five Commissioners, should be constituted and authorised to formulate schemes for the acquisition and improvement of waterways, and particularly to acquire certain existing waterways with the object of carrying out a project for connecting the Midland counties with four large rivers—the Thames, the Humber, the Mersey, and the Severn. It should be noted, however, that discretionary power is contemplated, for the Commission propose that the new authority should review the whole situation on business lines after their appointment. If the successful results attained on the Continent are to be secured in Great Britain, State aid is a foregone conclusion. This source of necessary funds is not free from objection, and we have no doubt that people who are directly interested in land transport will re-echo the suggestion of Mr. Inglis that railways deserve State assistance more than waterways.

Whatever may be the policy ultimately adopted with regard to the railway interest, we are clear upon the point that the natural resources of the country in respect of inland waterways ought to be developed so far as that course is compatible with reasonable financial success. We do not anticipate any immediate result from the present Report, which will probably be pigeon-holed in company with the Traffic Report and other weighty documents prepared at great cost and little benefit to the nation.

NOTES.

St. Paul's Bridge.

THE President of the Institute of Architects has written a letter to the *Times* making an earnest protest in favour of treating this important work so as to render it an addition to the architectural beauty of London and to the effect of the surroundings of St. Paul's Cathedral. Mr. George writes:—

"To those whose pride is in their city the scheme now before the Corporation is of the keenest interest; a new bridge and a new approach, opening up St. Paul's, provide the opportunity for beautifying a quarter of the town. Approached from the west the metropolitan cathedral forms an impressive picture, notwithstanding the iron railway bridge in the foreground. On other sides the great church is crowded upon by tall houses. There is now the chance of a south view by the proposed new street, which should have the dome in its vista.

It is the earnest hope, not only of architects and of other artists, but of all who desire beauty in our town life, that this great change shall be made, not only with a view to traffic, but at the same time with the wider consideration for all else that may be gained thereby. The new bridge should be a feature with architectural character, and should not be a clever arrangement of iron girders."

Mr. George asks for the support of the *Times* in this view, which has not been accorded so far, except in giving a prominent position to his letter. The present is a very bad moment, no doubt, in the midst of the turmoil of political strife, to ask attention to the interests of architecture. But it must be remembered that when this party strife has died out and become ancient history, the bridge, good or bad, will remain for centuries—a monument either of the noble or the mean ideas of this generation in regard to the architectural dignity of the capital.

The Aberdeen Sketch-Book.

WE welcome the first number of the "Aberdeen Architectural Association Sketch-Book," published for the Association. The Association, which was founded in 1905, endeavours to draw attention to the value of the study of existing examples of ancient art and craftsmanship, and the "Sketch-Book" is intended to provide a means by which this and other records of architectural value may be made available for study and reference, in a permanent and readily accessible form. The first number, which is of large folio size, and contains fourteen plates, entirely answers to the statement in the Preface as to its objects. It is an eminently practical publication, consisting so far entirely of measured drawings, plans, and details of ancient buildings. Among the contents are drawings of the curious old church of St. Ternan, Arbuthnott, one of the few existing pre-Reformation parish churches in the north of Scotland; drawings by Mr. James H. Scott. Tolquhon Castle is illustrated by Mr. William Green; a late XVIth-century castle with semicircular projecting turrets finishing in a corbelled-out square story above; the mouldings, which are of considerable interest, are profiled to a large scale. "Robert Gordon's Hospital" (1732), by William Adam, father of the celebrated "brothers," is illustrated by Mr. Leonard J. Smith. There are drawings of some old furniture, and a sheet of "Lead rainwater heads from Old Buildings in Aberdeen, now Demolished" (Mr. S. H. Brown); these have a local character of their own, and differ very much from English work of the same class. Mr. George Irvine is the Editor of the Sketch-Book, and the simple but well-designed lettering of the cover is the work of Mr. Arthur Payne, who is said to have done more than anyone else to revive the knowledge of good lettering in Aberdeen—an important point in a city where so much monumental work with inscriptions is carried out. We wish the Aberdeen Sketch-Book every success.

The Hurry of Competitions.

WE print in another column a letter signed "Competitor," asking whether more time could not and ought not to be allowed for the finishing of the designs for so important a competition as that for the National Museum for Wales. Fully sympathising with our correspondent in this particular instance, we should wish to add that the insufficiency of the time generally allowed for competitions is a most serious evil, and a cause both of inconvenience to the

competing architects and of injury to architecture. Unless in the case of a building which for some special reason is wanted for a fixed date, there is in general no excuse whatever for the practice of allowing for a competition the shortest time in which it is computed that competing architects can put together a design. In most cases a month or two longer would make no real difference to the promoters; there is no reason why competition architecture should be made a work done against time; and the result is that an architectural conception is made hurriedly, which might have been much better if the architect had had time to mature it at leisure. It is true that competition designs are nearly always modified, in detail at least, in the working drawings; but the main idea is generally retained, and this might have been a better one had the competitors not been hurried. Many committees, of course, have no clear idea as to the time which it takes to make a set of drawings of a large building; but in any case there is nothing really to be gained by setting all the architects to work against time, and there is almost certainly something to be lost to the building. The best architecture cannot be produced in a hurry.

Building Agreements.

ALTHOUGH the preparation of the Royal Institute building agreement was commenced more than thirty years ago, it is stated by the author of a paper now before the American Society of Civil Engineers for discussion that the work of the Institute is almost unknown in the United States. Something of the same nature has been done on the other side of the Atlantic, for several years ago the American Institute of Architects, in co-operation with the National Association of Builders, adopted a document known as the "Uniform Contract," the last revision of which was copyrighted in 1905. Although far from perfect, this form of agreement is in general use among architects. In due course it will be replaced by the new contract for which material is being collected by a committee of the American Institute. Learning that the work of the committee may not be published for some time, Mr. W. B. Bamford, the author of the paper mentioned above, has presented his own views on the subject, and it is gratifying to find that "the more closely the writer analysed his own work and ideas and compared them with those of the Royal Institute of British Architects the more firmly convinced he became of the excellence of the latter's work." The proposed agreement, of which the full text is given in the *Proceedings* of the Society, is simply the revision of "a most excellent document to meet American conditions," and the paper is one which will repay consideration by all who are interested in the subject.

Steel Columns.

SHORTLY after the Quebec Bridge failure a special committee was appointed by the American Society of Civil Engineers to consider the design, strength, and safe working stresses of steel columns and struts. An interim report in the *Proceedings* of the Society includes a series of twenty-two diagrams showing the results of column tests by various authorities, all values being plotted on the uniform basis of 60 000 lb. ultimate compressive resistance. While convenient for the purpose of approximate comparison, these diagrams are quite inadequate for the establishment of revised formulæ, and the committee point out the need for elaborate series of tests in order that the effects of different variable factors may be disclosed in a satisfactory manner. Such tests, they consider, should be made by the United States Government—a suggestion which is not quite so hopeless as a similar proposal would be in this country. As the matter stands at present the committee wisely abstain from complicating the position by putting forward any tentative formula for the design of columns and struts, leaving any recommendation of the kind in abeyance until the results of further tests have been studied.

A Notable French Highway.

THE new boulevard opened in December between the towns of Lille, Roubaix, and Tourcoing, in the north of France, may well serve as a model for broad avenues connecting large cities with suburban districts or connecting important centres of population in Great Britain. The grand boulevard extends from Lille to Tourcoing, about seven and a quarter miles, with a branch to Roubaix. Its total width of 164 ft. comprises a central macadam roadway 29 ft. 6 in. wide for heavy traffic; two outer paved roads, each 18 ft. wide, for carriages and light vehicles; two intermediate avenues, each 36 ft. wide, bordered by trees, one reserved for two electric tramway lines and the other for cyclists and equestrians; and four paths, 10 ft. wide, for foot passengers, two of these being included in the intermediate avenues, where seats are provided at intervals beneath the trees. The idea of the boulevard dates back to the year 1860, but was only sanctioned in 1901 by the Department du Nord on the recommendation of M. Stoclet, the chief engineer. The total cost has been defrayed by the various municipalities, the tramway company, and the Department du Nord, the outlay being stated at 340,000*l*., which presumably does not include the tramway installation.

Manchester Industrial Exhibition.

THE prospectus of the Manchester Industrial Exhibition, which is to be held from May 12 to June 25 of this year, seems to promise that the Exhibition will be one of considerable importance. A special building is in course of erection for the occasion, which it is stated will have a larger floor space than the Agricultural Hall in London. Among the subjects to be illustrated are construction generally; sanitation; ventilating, heating, and lighting; furnishing, etc.; also machinery as applied to these industries. The prospectus also mentions "Decorations, Pictures, China, and the Fine Arts," but past experience does not lead us to expect much from these subjects in an industrial exhibition; they generally only mean the exhibition of what may be called ornamental manufactures, which are exhibited rather for the good of trade than the advancement of art. Such an exhibition is better regarded and treated as one for the illustration of practical subjects connected with building. The programme includes also the arrangement of schemes for housing the poor, model houses, etc. We are glad to see that it is to be open for a longer period than is generally accorded to such exhibitions. We have always thought that the fortnight or so generally accorded to the biennial Building Trades Exhibition in London is too short a period to allow of such an exhibition being properly studied and appreciated.

LESSONS FROM THE CLAPHAM FIRE.

AFTER an unusually searching inquiry into the cause of the disastrous fire by which the stock and premises of Messrs. Arding & Hobbs at Clapham Junction were destroyed just before Christmas, the Coroner's jury have decided that no one is to blame.

The building represented a type very common throughout London and the country generally; it was provided with various structural safeguards in the way of iron doors, escape-ladders, and some concrete floors and stairs; and it was equipped with numerous appliances for dealing with outbreaks of fire. Yet the fact remains that by the breaking of a small electric lamp in one window the whole establishment was burnt out with amazing rapidity. Fire-buckets, hydrants, and chemical extinguishers were of no avail; only three out of twelve fire-doors were closed, some at any rate being left open to permit the use of hose; steel columns and girders were softened by the heat so that they collapsed, bringing down floors and walls; and the only parts of the structure that remained sound were one or two concrete stairways and parts of the concrete block partitions.

In view of this startling experience, business firms, the public, and even architects, may reasonably be urged to pay increased attention to the desirability of fire-resisting construction, safeguards against fire, and appliances for checking small outbreaks of fire at the very commencement. Before discussing these matters in the light of evidence brought before the Coroner, we will dispose of the question attaching to the employment of electric lamps in the vicinity of inflammable materials.

The lighting arrangements in the window where the fire originated were installed in December last, and included sixteen-candle-power sixty-volt metallic filament lamps working in a series of two on a circuit of 120 volts. By some accidental blow, by atmospheric pressure on a weak bulb, by the short circuiting or fracture of a filament, or some other agency, one of the lamps broke. This, as stated by Mr. Cooper, the electrical contractor, would put the whole voltage on the other lamp of the series and might cause that to explode. The effect of heated filaments in contact with inflammable substances was made very clear by the evidence of Mr. Sidney Russell, the electrical expert to the Phœnix Assurance Company. Some experiments conducted by this witness since the fire showed that on breaking a tantallum lamp suspended over dry cotton wool, the latter was instantly set alight in a mass; a second test with damp wool only produced scorching; and by breaking a similar lamp having cotton wool placed loosely around it and a celluloid telephone mouthpiece below, the whole immediately caught fire, including the mouthpiece.

We particularly commend to the notice of

our readers the further remarks of Mr. Russell to the following effect:—

That the danger of unprotected electric lamps has always been recognised under the Mines Acts and in the rules relating to gunpowder factories;

That it is in the mind of every electrical engineer that lamps may break and cause a fire;

That the dangerous practice of using electric lamps near inflammable substances is generally pursued in London.

While emphasising these points, we think it only right to say that Mr. Russell considered the installation at Clapham Junction had been properly executed by the contractors employed.

One lesson to be learnt from the fire is that, as the danger of using electric lamps in proximity to highly-combustible materials is now widely known, anyone who continues to do so will incur serious legal responsibility if a fire is thereby caused.

With regard to fire-fighting equipment, it should be noted that Messrs. Arding & Hobbs had provided an extensive installation of apparatus, including fifteen high-pressure hydrants supplied by a special main and commanding the whole building by hose-pipes, a large number of fire-buckets, of which 180 were added before Christmas, numerous chemical extinguishers and hand-grenades scattered about the different departments. The firm had also organised a trained fire brigade from among the members of their staff, and their premises were provided with iron fire-doors in accordance with the regulations of the County Council. Nevertheless, as the Coroner remarked, with all these appliances seven people were killed before the building was cleared. It is true that the fire was exceptionally rapid, and that some of the victims might have escaped if they had sought egress from the back instead of the front, where no safety-ladders were fixed. Nevertheless, the position is disconcerting in the extreme, especially when we consider that there are large numbers of other business houses in London where the same thing might have happened.

The lesson to be drawn from this aspect of the fire is that efforts should always be directed to the provision of the most efficient apparatus for putting out any outbreak before it attains unmanageable proportions.

A witness who observed the start of this conflagration from an opposite shop said that all at once the window turned yellow with a wave of flame, in about three minutes the glass came out, the flames caught the next window and then appeared to go all over the place. The first thing in the way of fire-fighting seems to have been the effort of an assistant to beat out the flames with his hands, then buckets of water and chemical extinguishers were used, and within a minute and a half water was available from the hydrants.

It is clear, however, from the evidence of the witness mentioned above, that the first three minutes constituted the critical period, the value of fire-fighting work being inversely proportional to the lapse of time. Hence we see the necessity for insuring an overwhelming deluge of water almost immediately any fire has commenced. The only way of attaining this end is by means of an automatic sprinkler installation. Like most other drapery firms in London carrying on what the Coroner thought "might almost be described as a dangerous trade," Messrs. Arding & Hobbs had not introduced automatic sprinklers, particularly as so many fire appliances were already available. Although not infallible as a safeguard, the sprinkler system is one deserving universal adoption, coming into operation just at the moment when every drop of water is worth a thousand times its weight in gold.

On the score of structural safeguards, apart from the general question of building construction, there is little room for criticism. Double iron doors with an interior air space were provided for the isolation of different sections of the building, but none of the latter could be cut off from the street by the closing of the doors, means of escape being provided by stairs or otherwise. The architect stated in his evidence that the doors worked very rapidly, and could be closed by one person without difficulty. Escape facilities generally were good, stairs and shoots being provided all round the building, and in this respect there seems to have been no lack of precaution.

Turning to the actual construction of the building, there is less reason for satisfaction. The premises had grown from time to time with increasing business, a fact which made them difficult to deal with in case of fire. As stated by Mr. Thorneycroft, the architect to Messrs. Arding & Hobbs, the structure was of brick as a rule, steel girders and stanchions being used as essential parts, and "where necessary" the floors and staircases were of concrete.

The Coroner displayed much interest in various aspects of fire-resisting construction during the examination of the architect, who is reported as having stated that steel is suitable for building purposes, and that, in fact, it is difficult to know what it could be replaced by. He was unable to say whether the steel used in this fire had assisted in the destruction of the building when the fire had once started, he did not consider the expansion of the steel members would be sufficient to push down the walls, he referred the Coroner to the ruins themselves for an answer to the question whether the collapse of the steel had pulled the building down, he stated that no steel would stand against a large fire like that under inquiry, and that the action of the steel would assist in spreading the fire if it happened very rapidly.

The same witness, being asked by the Coroner whether any other material was known to him which could be substituted for the erection of a building like that of Messrs. Arding & Hobbs, suggested that large buildings might be constructed with granite or stone pillars or arches, but it would be very expensive, and fail to provide the area for glass given by steel construction, which he considered insured as much safety as could be expected from any materials so far as present knowledge extends.

Replying to Mr. Biddle, representing Messrs. Arding & Hobbs, the witness said that so far as he knew now he could not have suggested to his clients anything which would have made their premises more secure, and that, judged by the ordinary rules of construction, the buildings were as good as they could have been.

From the foregoing statements it would seem that Mr. Thorneycroft is a firm believer in the merits of steel as a structural material, and does not consider reinforced concrete to be a practical substitute for steel in the construction of girders and columns.

Other answers published as part of his evidence constitute useful testimony to the endurance of plain concrete. For instance, we are told that while stone might break and shell off concrete would not do so, and that the concrete staircases at Clapham Junction stood the fire very well, one of them being so firm that it remained intact from top to bottom of the high building. As to some of the concrete partitions we give an illustration of the manner in which a great portion of them stood.

Although not able to agree with the views expressed by Mr. Thorneycroft as to the merits of steel, unless adequately protected, we can quite understand that in altering and enlarging old buildings it would be difficult or impossible to change the general nature of the construction, which was doubtless satisfactory in every way as judged by ordinary standards, although the result of the fire shows that it could not be said to constitute fire-resisting construction.

On Tuesday last further evidence was given concerning the structure of the building by Mr. Stokes, the District Surveyor. This witness said that if there had been concrete floors, and if the steelwork had been encased in concrete, there would have been little to burn but the contents of the rooms, and the fire would soon have been put out. As it was, the girders were only protected by matched lining, and the contortion of the steel brought the building down.

However strongly one may disapprove such methods of construction, the fact remains that the Clapham Junction building conformed with the requirements of the law, it presented no exceptional features, and represented quite an ordinary risk.

In his summing up the Coroner said that, despite the evidence of the architect, the premises at Clapham Junction were not the "last word" in buildings of the sort, although no doubt within the four corners of the Act of Parliament.

That certainly is the case, but the trouble is that people will not always have the most approved fire-resisting construction, believing ordinary methods to be good enough, and the risk of fire a remote contingency. Under the new regulations of the County Council protected steel-frame or reinforced concrete buildings ought to cost no more than structures of brick and unprotected steel. The extreme undesirability of the latter type is the last and most important lesson of the Clapham Junction fire, and we trust it will be taken to heart by all large business firms as well as by the public at large.

THE CITY AND BRIDGE GATES ON OLD LONDON BRIDGE.

AT the last wardmote of Bridge Ward Within it was resolved that, in view of the national interest which centres in the Ward and London Bridge on account of their historical associations and their having served as land and water gates of the City from time immemorial, it was fitting that any rebuilding of the houses abutting on the northern approach to the bridge should receive dignified architectural treatment worthy of the site and its national interest. The Ward representatives will confer with the Fishmongers' Company and the owners of Fresh Wharf and Pearl-Buildings when such rebuilding is undertaken. Several bequests of property, rents, etc., in that locality were made, we may observe, by Sir Thomas Kneseworth (1513) and subsequent benefactors to the Fishmongers' Company for eleemosynary objects.

The second London Bridge, and the first of stone, was begun in 1176 to the west of the wooden bridge (at Botolph Wharf) by the priest-architect Peter, chaplain of St. Mary Colechurch, in Cony Shop-lane (Poultry), and after his death in 1205 was finished by, it appears, Serle the Mercer, Benedict the Boatwright, and William the Almaine, citizens; and an architect, Isenbert of Sainctes, upon King John's recommendation to the mayor and citizens. The King's letter provided for the repair and upkeep of the fabric out of rents and profits of houses to be built upon the bridge. The bridge crossed the river from the present Fenning's Wharf, Tooley-street, to the foot of Fish-street-hill, where is now an opening between Fresh and London Bridge Wharves. It was 926 ft. long and 40 ft. wide; it had, originally, nineteen two-centred arches and a drawbridge, or wooden bascule, across the Draw Lock, being the seventh lock reckoned from the Surrey side. The massive piers, having alternately polygonal and squared heads and long and widely-projecting starlings constructed of piling with plates and braces filled in with chalk and rubble, and resting upon piles of Durmast oak, *quercus sessiliflora*, varied from 15 ft. to 38 ft. in breadth. The twenty locks gave waterways

ranging from 15 ft. to 34 ft. at neap high tides—confer George Dance's measured drawings of 1799, preserved in the Guildhall. The Great Lock, beneath a rounded arch of 70 ft. 5 in. span, was made by Dance the elder and Sir Robert Taylor in 1758-9 by the removal of the ninth pier, from the Surrey side, and fusion of the Old Pedlars and Old Gutt Locks; the crown of the arch was level with the upper plinth of the base of the Monument. The baptism of the citizens' patron saint, Thomas of Canterbury, in St. Mary Colechurch, was commemorated by the dedication to him of the Chapel designed by Peter the priest, and the first and most beautiful building erected on the bridge. Measuring 60 ft. by 20 ft., it stood on the east extension of the eleventh pier, which measured 35 ft. by 125 ft. over all. The west front, 40 ft. high, abutted on the Bridge-street, the east end formed a semi-octagonal chevet; the crypt, about 20 ft. high, sank into the pier with its floor at a depth of from 10 ft. to 12 ft. below high water level. Peter's remains were found there in the demolition of the bridge, 1831-2.

Three gate-houses for defence stood across the narrow roadway at the two bridge-ends, and upon the seventh pier, that is to say next north to the Draw Lock, and next south to the Nonesuch House of *temp.* Elizabeth.

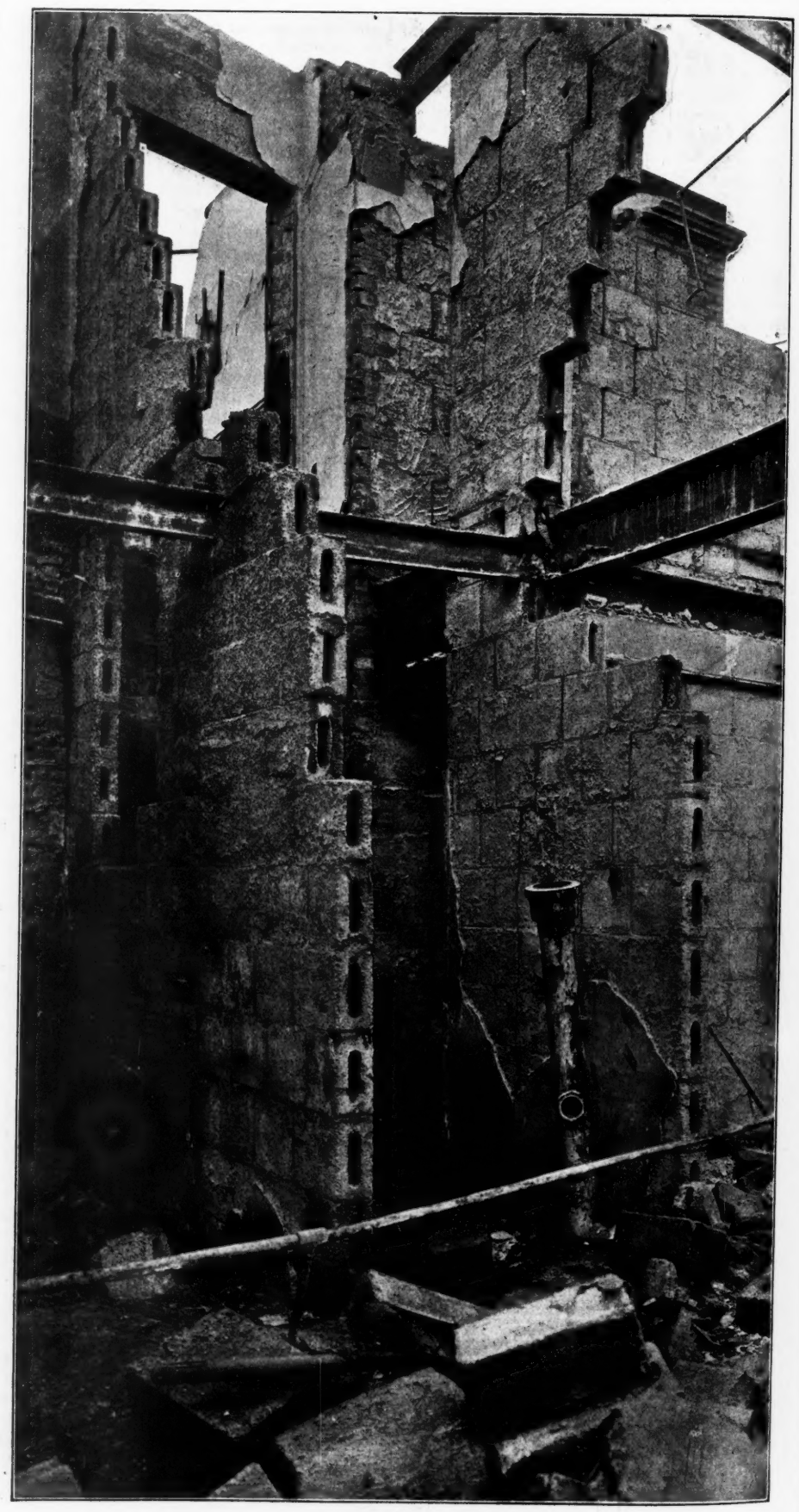
In 1305 the display of the heads and limbs of offenders convicted of high treason was transferred from the north gate-house to the intermediate Great, or Stone, Gate, a strong keep erected in the XIIIth century and rebuilt in 1426. The Stone Gate was replaced with a gate and tower known as Bridge House, a beautiful structure mainly of timber, in 1577-9, when the name and use of the "Traitors' Gate" was removed to the south gate, the Bridge, or Southwark, Gate standing above the two Surrey Shore and Borough Wheel Locks (see our illustration, December 23, 1899, after a drawing by E. W. Cooke, November 25, 1831). London Bridge suffered much from fires. In 1212 all the houses were burned; in 1632 a fire destroyed the buildings at the northern end, leaving a gap, shown in Hollar's drawing of 1647, which prevented the Great Fire from advancing to the Surrey side and into Southwark; the gap was subsequently blocked in again. At that, the north, end, in the London Shore or First Wheel, and the Second, Third, Index, and Shore, or Mill, Locks, and on the up-stream side where is now London Bridge Wharf, Peter Corbise (or Morice), the Dutchman, established, in 1582, the waterworks whose lofty tower remained until 1822 (see H. W. Brewer's drawing of the bridge, as in or about 1600, in the *Builder* of May 10, 1884). The South, or Bridge Gate fell down, with its tower and the two arches, in 1436; in 1471 Falconbridge and his Kentish "mariners," Stow says, burned the gate, as rebuilt, with thirteen adjacent houses. A fire in Southwark greatly damaged the Bridge Gate in 1725; it was rebuilt, across the roadway widened from 13 ft. to 18 ft., with two side-posterns.

In the XVth-XVIth centuries a custom obtained of decorating all the bridge gates with boughs and garlands on Midsummer Day. The new Bridge Gate, the North Gate, the City Gates in the London wall, and the Chapel, Bridge House and houses on the bridge, were taken down in 1760-2. There is a view of Bridge Gate, with the achievement of the royal coat-of-arms *temp.* George II., in Noorthouck's History of London, 1773. At the sale of the stones of Bridge Gate the finely-sculptured coat-of-arms, with supporters, crest, mantling, etc., was bought by one Williams, of Tooley-street, stonemason, who, being shortly afterwards employed in the building of King (now Newcomen) street, in the Borough, used some of the bridge materials and fixed the trophy against a public-house—the King's Arms. The "G. II. R." of the carving was altered to "G. III., 1760, R." That little known relic, and Queen Elizabeth's statue, at St. Dunstan's, in Fleet-street, from Lud Gate, are the only remains extant in London of the City Gates. Mountague, the City architect, laid out the approaches to the present bridge. Sir Robert Smirke designed the façades in Adelaide-place, King William-street, and Wellington-street—the Fishmongers' Hall excepted, of which H. Roberts was the architect. The earliest known picture of the bridge will be found on page 73 of the MS. Poésies de Charles Duc d'Orléans, composed during his captivity in the Tower, 1415-40: the volume is in the British Museum. Mr. J. B. Thorp's model, to a scale of $\frac{1}{8}$ in. to a foot, was made in 1907.

VIEW OF MESSRS. ARDING & HOBBS' PREMISES AFTER THE FIRE.

THE illustration, from a photograph taken after the recent fire at Messrs. Arding & Hobbs, shows the remarkable way in which Messrs. J. Wright & Co.'s hollow concrete block partitions resisted the action of the fire, a large portion of them being left standing as shown; and though all the wood framing, and in many cases the plaster has been destroyed, the blocks are uninjured, and where they have fallen to the ground are practically unchanged by the fire.

If proper armoured doors had been used in connexion with these partitions, and had



Photograph after the fire at Messrs. Arding & Hobbs, showing the "Hollow Concrete Block" Walls standing after the fire.

the floors held out, much loss of life and property might have been prevented.

The blocks are made of a special fire-resisting concrete, and stood the ordeal of fire and water most successfully.

ST GILLES, CAEN.

THE parish church of St. Gilles is situated close to the famous abbey, "La Trinité."

It is a good example of a smaller church, built in the flamboyant style of the XVth century. The church has nave and two aisles but no transept. The view shows the porch on the south side.

The illustration is from a water-colour drawing by Mr. H. Sund.

Porch, St. Gilles, Caen. From a Water-colour Drawing by Mr. H. Sund.

OLD MASTERS AT BURLINGTON HOUSE.

THE Italian section of the Old Masters Exhibition, opened this week at Burlington House, is not so remarkable for the intrinsic beauty of the works exhibited as for the fact that it includes examples of a good many works by painters not so well known as the greater Italian masters. Raffaellino del Garbo's "Virgin and Child," for instance, in the Gallery I., is a curious example of a direct imitation of Botticelli by a painter a generation his junior. Cosimo Roselli's curious picture, "Intercession," is noticeable for the interesting treatment of the landscape and city background, and Luini's "Nativity," again, for the vision of the angels appearing to the shepherds, an accessory scene in the background, where the angels appear in a kind of globe of very luminous light. There is a good example of del Sarto's rather weak elegance in treating a "Holy Family" subject; and two large pictures of groups of figures, both under the title "Santa Conversazione," by Giovanni Bellini and Palma Vecchio respectively, are interesting examples of figure composition of an Academical character. Lorenzo Lotto's "Susanna" is remarkable for the real beauty of the principal figure, and a certain dramatic force about the grouping of the other figures.

In Gallery II. Moretto's "Marriage of St. Catherine" is a fine picture of the Virgin and the Saint in Renaissance garments of very effective design. Velasquez is illustrated in a picture characteristic of him, "The Steward," while his "St. John Writing the Apocalypse," shows where the limits of his powerful but unimaginative art were; it is totally wanting in the spiritual feeling that the subject requires. Titian's "Daughter of Herodias," if genuine, is not a very good Titian. In the picture of "St. Augustine of Hippo" Murillo is seen in a more forcible and less sentimental mood than in most of his religious pictures.

What is usually the Water-Colour Room is devoted to Dutch paintings, a collection illustrating many of the best known painters of the School; among the best are Terburg's "Portraits of a Lady and Gentleman"; Maes's "Interior; a Woman Pumping"; and Teniers's "The Alchemist," the latter a very good example of Teniers.

It is in Gallery III. that we find the works to arouse enthusiasm, and remind us that first-rate English painters are far better than second-rate Italian. The room is full of fine things. Among them is Hogarth's remarkable work, "The Lady's Last Stake," which has been in a previous exhibition. Reynolds's "Viscountess Beauchamp" is a monumental portrait, equally grand in design and colour; and his "Mrs. Charlotte Hanbury," painted in a quieter mood, is a lovely colour scheme. Among other portraits are Romney's two of Miss Lawrence and her brother; Raeburn's of "Sir John Sinclair"; Rembrandt's of himself and his wife; Hoppner's fine group of "Mrs. Sheridan and Her Son," in which he comes very near to Gainsborough; and a fine portrait of a lady by that nearly forgotten Academician John Russell (1744-1806); an obvious and fairly successful imitation of Gainsborough. Among the landscapes is Crome's grand picture, "A Yarmouth Waterfrolic," in reality a reposeful painting of calm water and ships whose sails are full of rich colour; a finely-composed Claude; and a landscape by George Morland, "A Coast Scene," showing that Morland could do more with pure landscape, apart from his groups of often boorish figures, than is usually credited to him. Turner's "Harbour of Dieppe," too, is a fine example of his later style. The pictures in the remaining two galleries open contain nothing of the first order of interest; there is another good landscape by Morland; Gainsborough's portrait of Admiral Hawkins; and Raeburn's portraits of Sir John Clerk and his wife, standing a little apart in a landscape; good figures, but a want of composition in the picture as a whole. Jordaens' large and robustious painting called "The King of Twelfth Night" is interesting as a curiosity, but is a blatant and ugly work.

The room called, from its usual occupancy, "the Black and White Room," is devoted to a collection of the works of that clever but very unequal painter the late Mr. E. J. Gregory. Among these there is at all events one really remarkable picture, both in drawing, colour, and dramatic interest—the one entitled "Dawn"; a man and woman, in evening dress, leaning against a piano, where they have talked the dawn in, in evidently passionate converse, contrasted by the sight of the commonplace head of the perfunctory hired musician at the piano. It is a very powerful work, quite beyond the usual achievement of the painter, though many of the smaller things in the room have a great deal of charm, and are always learnedly and conscientiously painted.

Engineering Societies.

THE INSTITUTION OF MUNICIPAL ENGINEERS.

At a meeting of the Council of the Institution, held at 39, Victoria-street, London, S.W., on Wednesday, December 22, thirty-seven applicants were elected to membership and five to studentship. The roll of the Institution now stands at 679 members and ninety-six students, making a total of 775.

Superannuation.—The Secretary was instructed to send to the National Association of Local Government Officers a copy of the following resolution which was passed at a meeting of the Northern District of the Institution held on December 18:—"That the Council of the Institution be asked to communicate with the National Association of Local Government Officers asking them to send a letter to each candidate for Parliament at the forthcoming election, inquiring whether he is prepared to vote for a Bill giving to Local Government officers superannuation on similar lines to that now enjoyed by poor law officers."

General Meeting.—It was decided that arrangements be made to hold the next General Meeting of the Institution, if possible, in Manchester in February.

Members at Council Meetings.—It was decided that any member of the Institution be allowed to attend Council meetings, and that any member so attending may, with the permission of the acting Chairman, address the Council on any matter under consideration.

Joint Committee Report.—It was resolved that the suggestions made at the joint meeting of the Council and Hon. District Secretaries on November 27, together with the observations since received on these suggestions, he referred to a Committee.

By-laws Committee.—It was resolved that a Committee to be known as the Revision of By-laws Committee be appointed to prepare new draft by-laws.

Concrete Institute Report.—Copies of a draft Report of the Science Standing Committee of the Concrete Institute were received, and the Secretary was instructed to circulate the copies among the members of the Council.

Examination Committee.—It was resolved, in pursuance of the resolution carried at the last general meeting, "That a Committee to be known as the Examination Committee be appointed."

ASSOCIATION OF MUNICIPAL ENGINEERS.

The Council of the Association have made arrangements to entertain Sir James Lemon (Past-President) at a dinner in commemoration of the honour recently conferred upon him. The dinner will be held at the Westminster Palace Hotel on Saturday, January 22, at 7 p.m. Friends of members will be cordially welcomed.

PICTURE EXHIBITIONS:

THE LANDSCAPE EXHIBITION.

THE six landscape-painters who used to exhibit together periodically are now eight—Messrs. R. W. Allan; Aumonier; Austen Brown; James S. Hill; A. D. Peppercorn; Bertram Priestman; Leslie Thomson; and George Wetherbee; and their pictures are on view at the Gallery of the Water-Colour Society.

Mr. Leslie Thomson and Mr. Priestman satisfy us most; Mr. Priestman's "The Month of Flowers" is a beautiful landscape in colour and composition alike, with a rich full style; and Mr. Thompson's "Easton Broad," in a somewhat thinner style of execution, is also a very fine composition. Mr. Aumonier's is a more powerful and robust style, but we have seen finer works from him than any here; the small picture, "Chalk Pit near Houghton," is perhaps the best of those he exhibits. Mr. R. W. Allan paints a Greek landscape with the Acropolis of Athens in the distance; a good work but not the kind of subject that suits him best; "The Bell Rock Lighthouse," with its grey wintry sea, is what he can do better. Mr. Austen Brown's works are not landscapes; and Mr. Wetherbee's belong to the idyllic class of work in which the interest is divided between the landscape and the figures, or the two have a combined interest; the sleeping shepherd is one of his best compositions of this type, and "Storm Clouds," a pure landscape, is a fine piece of effect. Of Mr. Peppercorn's pictures we prefer to say nothing, except that we are thankful we do not see nature as he sees it.

LONDON AND DISTRICT BOROUGH COUNCILS.

Finchley.—Plans have been passed as follows:—Messrs. Frecker & Co., four houses, Holly Park-gardens; Messrs. Champ Brothers, three houses, Windsor-road; Alliance Estates and Development Company, fifteen houses, Woodgrange-avenue; Mr. I. Rich, ten houses, Argyle-road and Westbury-road. Mr. S. J. Hunnings has lodged plans for thirty houses in Woodside-grove, North Finchley.

Greenwich.—Six roads are to be repaired with granite and flint, at an estimated cost of 455*l.*

Hammersmith.—4,244*l.* is to be spent in laying out Wormholt Park, the chief items being as follows:—Laying-out ground, including labour and materials, 2,600*l.*; road-making charges and sewer construction, 1,125*l.*; temporary fencing, 341*l.*; permanent fencing for Sawley-road front, 166*l.* Adelaide-road is to be connected with Sawley-road, at an estimated cost of 120*l.*

Leyton.—The Urban District Council has pased plans as follows:—Mr. W. J. Maddison, Church Hall, Woodhouse-road; Mr. R. Grimes, three houses, King's-road; Mr. A. Radcliffe, addition to factory, Church-road; Mr. J. Amiss, eight houses, Essex-road.

Shoreditch.—As the results of negotiations between the Highways Committee and the London County Council, it has been provisionally agreed that street improvements and widenings be carried out in East-road, New North-road, and the bridge carrying New North-road over the canal; also that a new street be constructed at the rear of Baring-street, at a total estimated cost of 113,020*l.* Of this the London County Council are to pay 96,533*l.* It is proposed that Mr. Wm. Bramham, A.M.Inst.C.E., be the Borough Council's valuer to negotiate for the acquisition of premises required, and that his fee be two-thirds of Rhyde's scale, and 2*l.* 2*s.* for each separate property for the necessary additional negotiations with the London County Council. The Finance Committee has passed an estimate of 4,525*l.* for repaving as follows:—Holywell-lane, 2-in. compressed asphalt, and 15-in. granite channels, 500*l.*; Paul-street, 2-in. compressed asphalt, 2,225*l.*; Wilson-street, 2-in. compressed asphalt (portion on slope in wood), 1,800*l.*

Woolwich.—The lease of 44, Powis-street has been acquired, and the premises are to be adapted (estimated cost 1,500*l.*) for an electrical showroom, etc. A plan has been passed for Mr. H. W. Eastwood, Steam Joinery Works, North Woolwich, to build twelve houses in Grenadier-street, North Woolwich.

THE BUILDER

JANUARY 8, 1910.

TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to "THE PUBLISHER," and *not* to the Editor.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

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MEETINGS.

FRIDAY, JANUARY 7.

Institution of Mechanical Engineers.—An extra general meeting. (1) "The Application of the Pitot Tube to the Testing of Impulse Water-wheels," by Mr. W. Rankine Eckart; and (2) "An Account of a Visit to the Power Plant of the Ontario Power Company at Niagara Falls (with Extracts from Papers by Officials of the Company)," by Mr. C. W. Jordan. 8 p.m.

MONDAY, JANUARY 10.

The Surveyors' Institution.—Mr. John Willmot on "The Housing, Town Planning, etc., Act, 1909," and a discussion on this paper, and on Mr. Davidge's paper on "Town Planning Systems," which was adjourned from November 22. 8 p.m.

Liverpool Architectural Society.—Professor S. D. Adshead on "Town Planning and Architecture," illustrated by lantern slides. 6 p.m.

The Incorporated Clerks of Works' Association (Carpenters' Hall, London-wall).—Paper by Mr. John Lamb on "The Art and Craft of the Plasterer." 8.15 p.m.

TUESDAY, JANUARY 11.

University Extension Lectures (British Museum).—Lectures on "Ancient Architecture," by Mr. Banister Fletcher.—XIV. "Roman Fora and Rectangular Temples." 4.30 p.m.

The Illuminating Engineering Society (Royal Society of Arts, John-street, Adelphi, London).—Discussion on "Glare, its Causes and Effects," to be opened by Dr. J. Herbert Parsons, F.R.C.S.

WEDNESDAY, JANUARY 12.

Edinburgh Architectural Association (Associates' Meeting).—Mr. D. S. M'Ilroy on "The Practice of Architecture in Western Canada." 8 p.m.

Northern Architectural Association.—Paper by Mr. F. W. Rich. 7.30 p.m.

THURSDAY, JANUARY 13.

Society of Architects.—Mr. Percy Waldram on "The Measurement of Illumination." 8 p.m.

The Institution of Electrical Engineers.—The second Kelvin lecture, "Lord Kelvin's Work in Telegraphy and Navigation," by Professor J. A. Ewing, C.B., F.R.S. 8 p.m.

Royal Society of Arts (Indian Section).—Mr. E. B. Havell, late Principal, School of Art, and Keeper of the Government Art Gallery, Calcutta, on "Art Administration in India." Sir George Birdwood, K.C.I.E., C.S.I., M.D., LL.D., will preside. 4.30 p.m.

Junior Institution of Engineers (Royal United Service Institution, Whitehall).—Mr. R. H. Hammersley Heenan, M.Inst.C.E., on "The Creation and Development of a Successful Port." 7.30 p.m.

FRIDAY, JANUARY 14.

Architectural Association.—Mr. J. Starkie Gardner on "A Comparison between English and Continental Ornamental Ironwork" 7.30 p.m.

Glasgow Technical College Architectural Craftsmen's Society.—Mr. J. Miller on "Native Timber." 8 p.m.

Fifty Years Ago.

FROM THE *Builder* OF JANUARY 7, 1860.

A WATER-FAMINE IN THE SUBURBS OF THE METROPOLIS.

INSUFFICIENT and ill-managed as are many poor districts in the supply of this necessary of life, it is difficult to imagine the condition of outlying districts before a somewhat regular supply of water was brought to this great population. Yet some idea of the inconveniences attending such conditions might have been formed lately in North Islington and other suburban districts. During the late short but rather severe frost whole streets, which were inhabited by large numbers of persons, were without water in their cisterns; some supplies in this way to houses which were closely thronged were exhausted on the second day of the frost, and those of neighbours and the tradesmen was soon in the same condition, owing to their willingness to lend to those who were waterless. After a lapse of time the plugs were set up, and motley crowds rushed with every variety of vessel for water needed for immediate use—pans, kettles, and pitchers were filled with much jostling and difficulty; but what could be gathered in this way was quite inadequate for the purposes of general cleanliness; cooking was managed with difficulty, washerwomen were in despair, cowkeepers were in sore distress, closets and drains became stopped, and those who had large families of children were struck with consternation when they found that means were not at hand to wash them. The washing of families could not be done, the scouring of floors was out of the question in many instances; for it was often said water was as precious as gold; and one of the old cries of London, "Who wants water, water!" was for a time revived.

During this time of famine the most ingenious means were resorted to in the houses to thaw the pipes and taps; in a few instances provision was made to prevent the action of the frost by overwrapping with oakum, straw, or, what is better, casing them with wood filled with sawdust. The former operations would, under the circumstances, as we will afterwards explain, not have been the means of allowing the water to flow into the cisterns; nor would the latter method have been effective, for the stoppage took place between the dwelling and the main pipe, and this was caused by the pipe leading from the main being too near to the surface.

When the frost departed, even after four or five days of open weather, the greater number of the cisterns were still empty. People were surprised, and could not divine the reason. "Why should Mr. So-and-So's cistern be full and ours not?" The turncocks were well rated, but they pointed to the water in the main pipes, which was coming from the temporary plugs. The fault did not lie there, evidently; but how was it, when the frost had left for so many days, that the small pipes still continued to be frozen?

If, in the first instance, the house-service pipe had not been placed so close to the surface it would not have been so suddenly acted upon by the frost, and it will be found that those houses which were first supplied, and which were longest in having the water stopped, had the service pipe at a greater depth than others.

Taking into consideration the expense of pipes bursting and the very great inconvenience of having no water in the house, it is incumbent on those who are arranging the conveniences of houses, particularly in neighbourhoods exposed to the severity of the weather, to adopt precautionary measures, *ab initio*. While our chimneys smoke, our water-pipes freeze, the drains get stopped, and half the heat from the fires is wasted, the science of house-building amongst us must be pronounced in a low condition.

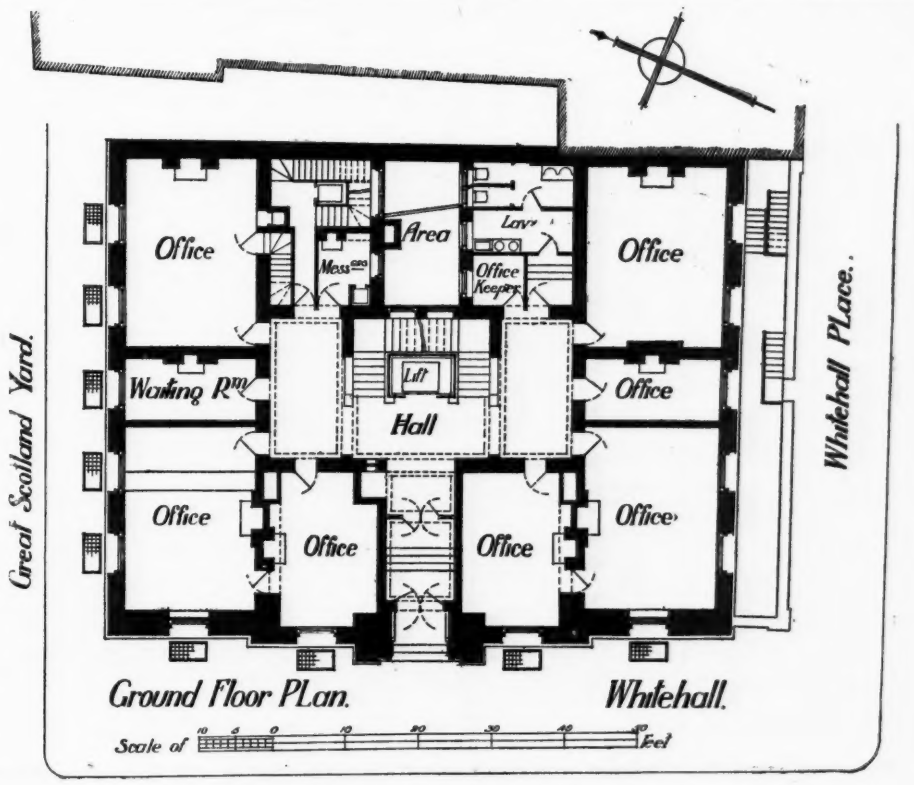
*** The lesson as to the necessity of laying water-pipes deep enough to escape frost has been learned since. But our chimneys still smoke too often, and much of the heat of the fire is still wasted.—ED.

Illustrations.

NEW OFFICES FOR THE COMMISSIONERS OF H.M. WOODS AND FORESTS, WHITEHALL, S.W.

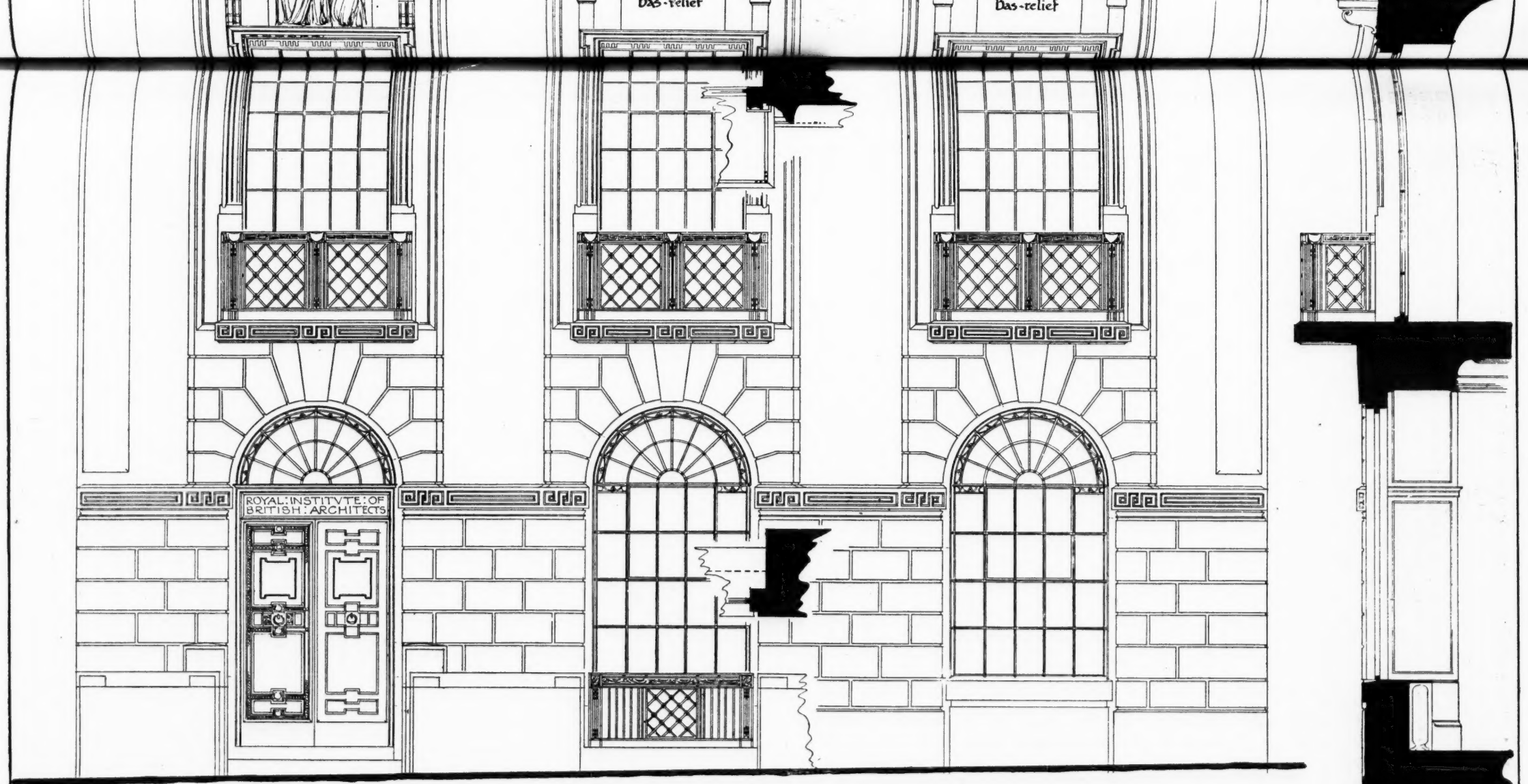
THIS building stands on a narrow site between Whitehall Place and Great Scotland-yard, which is being carried through 40 ft. wide into Whitehall.

The three façades are faced with Portland stone from the Wakeham quarries, and the



New Offices of Woods and Forests. Plan.

Bas-relief
Bas-relief
Bas-relief
Bas-relief
Bas-relief



ELEVATION

SECTION

BUILDER COMPETITION FOR A FAÇADE TO No. 9, CONDUIT STREET: DESIGN HIGHLY COMMENDED.—MR. G. A. E. SCHWABE.

carving has been executed by Mr. C. H. Mabey; the cornices and stories line with those of the War Office. The building is supported by a raft of concrete, and the basements are enclosed with concrete retaining walls.

The offices on each floor are grouped round a central hall, in which is the principal staircase constructed in reinforced concrete covered with silex stone. An electric lift is fitted in the staircase well, and electric light and telephones are installed throughout.

Upon the site stood old buildings erected at the end of the XVIIIth century, and formerly the land was part of the garden of old Whitehall Palace. During the excavations numerous larch and fir piles which supported the old buildings were removed, and many of them were found to be as sound as new timber.

The builders are Messrs. Mowlem & Co., and the architect is Mr. John Murray.

THE *BUILDER* COMPETITION: DESIGNS FOR FAÇADES FOR No. 9, CONDUIT-STREET.

WE publish this week the two designs to which the prizes were awarded in our Competition.

We think all will agree that Mr. Stanley Wearing's front is an exceedingly careful and refined piece of Classic design.

Mr. Welford's design may be thought by some to be out of keeping with the position; we have heard the tiled roof objected to, but in Italy at all events there are plenty of red-tiled roofs to Renaissance buildings, and it has, we have observed, become rather a popular treatment with young architects of the present day; we have remarked it of late in designs by the Architectural Association students. On the whole, we think that roof a little out of keeping, but it is a minor matter. The design, simple as it is, shows real character, and if it were built, no one would have any doubt that this front with the four portrait statues was the Architects' house.

Nevertheless, as we have before said, we think an adherence to traditional style was more suited to the occasion.

We give an extra illustration of the design by Mr. G. A. E. Schwabe, which was much appreciated by the assessors as a piece of very refined drawing and detail. Mr. Schwabe is, we believe, an assistant in the office of Mr. Edgar Wood, of Manchester.

FERRO-CONCRETE CONSTRUCTION.

THE following paper, by Mr. H. W. Taylor, A.M.Inst.C.E., of Newcastle-on-Tyne, was prepared for reading at the winter meeting of the Association of Water Engineers, held on the 10th ult. at the Geological Society Rooms, Burlington House, W.:—

"It will be generally conceded that suitable design and good construction are the two most essential conditions in ferro-concrete work. Should either of these requirements be absent, the result is almost certain to be unsatisfactory.

Factors of Safety.

The author suggests that before designs are prepared the following particulars should be definitely settled:—

(1) The live (or applied or accidental) load per unit.
(2) The factor of safety for the live load (usually about 4).
(3) The factor of safety for the dead load (usually about 3).
(4) The test load (which should be 1½ times the live load).

For the walls and floors of reservoirs, and especially for water towers, the author is of opinion that a higher factor of safety should be used, and in his experience a factor of 5 or even 6 is none too much. Water pressure is the most searching of all pressures, and though theoretically a higher factor is not needed, this is essentially a case where theory and practice differ.

The author is of opinion that the factor of safety should be based on the elastic limit of the steel. The live or working load should not exceed one-half of the elastic limit, while the test load should not exceed three-quarters of it. Factors of safety are, however, very generally stated in ratio of the breaking weight, and therefore the elastic limit of the steel should be doubled when this ratio is adopted. As an example, with steel whose elastic limit is about one-half of its ultimate strength, the factor of safety would be described as 4 for one-quarter of the breaking load. The author welcomes the recommendations made by the Royal Institute of British Architects Joint Committee, and it seems fairly certain that these will be the standard regulations in the British Isles for some years to come.

Design of Centering.

The primary object in designing centering should be ease in removal and facility for quick re-erection, a point which is of the utmost importance where there is much repetition on a contract. A careful study of the most suitable arrangement of the centering is time well spent. It should never be forgotten that the cost of centering is nearly always a large percentage of the total cost of the structure, and economy on this item will frequently mean an appreciable sum of money. Where it is possible and the smaller spans permit, it is frequently desirable to arrange for the floor slab centering to be carried on the secondary beam troughing, and for this troughing to be carried in turn on the column boxing. With large beams of considerable span this, generally speaking, will not be possible, and arrangements must be made for the beam troughing to be carried by struts. The beam troughing should be so designed that the under or bottom board may remain in position after the side boards and the floor centering have been removed. All struts under beams, etc., should be wedged from below at the floor level, and not at the top of the struts.

It is also advisable to chamfer the arises of the columns and beams, as giving a much more pleasing appearance to the work, also to give a camber to the beams of about ½ in. in 10 ft.; if this is not done, the beam, though perfectly straight, will appear to the eye to sag at the centre. The ends of the beams should be haunched on to the supports where this is possible, especially in continuous beams. Thick timber is better than thin, as it lasts much longer and stands rough handling better, and, generally speaking, is more economical in the end. In the construction of walls it is generally advisable to fix the outer shuttering first, then place the steel in position, and add the inner shuttering and concrete as the work proceeds. To keep the inner and outer faces of the shuttering for walls the proper distance apart, perforated wood plugs or concrete separators are used, a bolt through the hole keeping the shuttering tight and rigid. After the shuttering is removed the holes left in the concrete are, of course, filled.

Where a smooth surface to the work is required the face of the timber touching the concrete should be wrought and coated either with mineral oil, boiled soap, or whitewash. These also preserve the life of the timber by preventing the liquid cement soaking into the pores of the wood. If the surface of the work is to be afterwards rendered, boiled soap or whitewash may be preferable to oil; in any case no animal oil of any kind should be used, but only mineral oil such as crude petroleum. After all the centering is fixed and coated with oil or soap, and the steel placed in position, it is advisable to thoroughly flush the centering and moulds with water before ony concerting is commenced.

Steelwork.

It will save considerable time if the steel is delivered cut to the required lengths, as by this means a good deal of smith's work on the job will be avoided. A convenient way of bending the smaller bars is so use a long temporary bench, constructed of thick timber with strong pins or plugs in same to bend the bars upon. These pins should be arranged to form a template, and thus the work will be accurate and expeditious. Generally speaking bars up to ⅝-in. diameter can be bent cold, but larger ones should be bent hot; and it is desirable that the heat at which they are bent should not exceed that of a cherry red; a white heat is not desirable. Smooth bars, whether round, square, or hexagonal, must be anchored at the ends, either by bending at right angles or by splitting open like a fish-tail or by means of a washer and nut, the latter being probably the most effective method. Steel bars in floors and walls must be crossed and bars in the beams must be cranked over the supports irrespective of the system used. Where openings occur, either in floors or in walls, it is always advisable to put additional steel round the openings. It is always preferable to have the inside of the steelwork of a column as clear and free from projections as possible, so that the ramming of the concrete may be thorough. Arrangements must be made for keeping the steel in the column boxes in its correct position while the concrete is being deposited in them; this can usually be done by temporary wedges. The steel bars in the beams can either be suspended from above or by the stirrups or shear hangers, or they can be carried on temporary wooden slips or by concrete bolsters in the bottom of the troughing. Generally speaking, it is not desirable to use wood slips, as workmen are frequently careless, and forget to remove them; concrete bolsters, on the contrary, are left in permanently and become part of the beam.

The bars in floor slabs can be kept the required distance above the centering by means of notched wooden templates, or by a round iron rod; these are pulled along the floor just in front of the concrete as it is being deposited. Another method is by means of small concrete blocks, which are embedded in the concrete and become part of the structure. It is in every way desirable that all or nearly all bars where they cross each other should be wired together with soft iron wire, thus guarding against displacement when the concrete is being rammed around them. This takes a little while, but is time well spent, and results in good homogeneous work.

Concrete.

Good concrete should be dense; that is to say, containing as few voids as possible; in this respect the selection of the gravel and sand is a matter deserving great care and attention. Hitherto it has been the custom to specify that concrete shall be composed of so many parts by measure of gravel, so many parts of sand to one part of cement, regardless of the voids in the two materials. This, in the author's opinion, is a mistake, and the proportion of voids in the gravel and sand should be ascertained, so as to obtain as dense and homogeneous a mass as possible. It is much more satisfactory to test the voids in the aggregate on each contract, as it rarely happens that the aggregate comes from the same source on two consecutive works. A fairly reliable method of ascertaining the voids in gravel (or broken stone) is to fill a vessel of known capacity, say, for instance, a three-gallon bucket, with gravel and shake it thoroughly well down; water should then be added until the bucket is full just to overflowing. The quantity of water used is noted, and the relative proportions of gravel and voids are thus ascertained in a simple manner. Probably the most accurate method of ascertaining the voids in broken stone is to first of all find the weight of a solid cubic foot of it, then weigh a cubic foot of the broken stone, and the difference will give the voids. It should, however, be noted that it is rarely possible to do this, and the water test has been proved by experience to be reliable

and satisfactory. The sand also contains voids, and these can be ascertained in a similar manner by the water test. The voids in clean, sharp sand vary from about 30 per cent. to 50 per cent., and this space must be filled, or the resulting work will be porous.

Specifications very frequently call for coarse, sharp, clean, gritty sand, but the author believes a sand containing a proportion of fine particles is preferable in the majority of cases. Of course, a dense concrete is not always needed, such, for instance, as internal doors; but where work is required to be weather-tight, and especially water-tight, sand containing a considerable proportion of fine particles is in every way preferable. The dust or flour created by crushing stone is frequently removed, but if dense concrete is required the author is distinctly of opinion that this is a mistake; the presence of this dust certainly retards the setting of the concrete, but ultimately it becomes quite as strong, and is certainly much denser than concrete made without the dust. In depositing concrete in the moulds and centering the chief object is for it to be homogeneous; if it is dropped from a height (even of 6 or 7 ft.) the larger stones tend to separate from the mass, and honeycombed work will result. Concrete should not be dropped more than a couple of feet; if it must descend from a greater height than this, it is better to slids it down a pipe or shoot. In ramming concrete, light rammers are preferable to heavy rammers, which are apt to displace the steelwork; light rammers are more easily handled and are equally effective in ridding the concrete of air bubbles, which after all is the primary object of the ramming. Concrete on small works is invariably mixed by hand, while on large contracts a mixer is generally used. If a concrete mixer is used the best work will undoubtedly be obtained with a batch mixer as distinct from a continuous mixer. If a continuous mixer is used it frequently happens that the stone comes through first, and the cement and sand last, and consequently the result is most unsatisfactory; the author therefore stipulates in all his specifications that batch mixers only shall be used.

The author's experience is that wet concrete is preferable to plastic concrete, because it fills the moulds and spaces better and flows between and around the steel bars more freely.

It is frequently the duty of a water engineer to design and construct reservoirs, tanks, and water towers, and it is obviously of the greatest importance that the work when finished should be watertight. This point is so excellently described in the *Engineering Record* that the author makes no apology for quoting the following extract from this paper: "The great obstacle hitherto experienced in making waterproof concrete has been its highly porous character. With the dry mixtures used in times past the porosity of the concrete was excessive, and not the least of the many advantages accruing to the use of wet mixtures is the greater solidity and density conferred upon the mass. A wet mixture not only causes all portions of the mass to run together in greater solidity, but it enables the finer materials of the aggregate to flow freely, and thoroughly into the spaces between the coarser particles, thus producing a much more continuous and dense interior mass. This obviously means a greatly reduced permeability to water and a much enhanced capacity to resist seepage through it. However much care may be taken in securing a thorough and intimate mixture of the component parts, some seepage will generally result under pressures of 40 to 60 pounds or less per square inch."

Whatever materials are used for rendering concrete waterproof, it is necessary that they must be such as will not affect the strength and durability of the concrete. It has been clearly established by tests that the presence of a small percentage of fine clay does not necessarily injure the strength of the concrete, while it certainly assists very materially in securing a much more waterproof concrete. This is, of course, altogether contrary to the former opinions of engineers, and judged by earlier teachings is a "heresy" of the most pronounced type. The use of soap and alum is fairly well known, both applied either as alternate washes on the concrete or as a solution in mixing the mortar for cement rendering. The addition of a soap and alum solution to cement rendering is undoubtedly beneficial where a watertight surface is required, but it must be remembered that if the sand itself is coarse and sharp the resulting work will probably not be watertight, there being an insufficient percentage of small particles to thoroughly fill all the voids. A material which is largely used on the Continent for this purpose is powdered pumice stone or "trass." This is sometimes mixed with the concrete, but more often with the rendering only. Two layers of rendering, the first composed of equal parts of sand, trass, and cement, and the second of equal parts of trass and cement, will usually give a perfectly watertight surface; the author has used it with eminently satisfactory results. The trass makes a fat fixture, and to use a plasterer's expression, works very smooth and "slick." There are a few patent waterproofing compounds on the market, such as "aquabar" and "medusa," but as the author has had no experience in their use he is unable to express any opinion as to their effectiveness.

Maturing of Concrete.

It is often advisable to make test cubes from the same concrete that is being used on the works so as to note the process of hardening. It is important that the moulds in which these test cubes are made should be thoroughly wet when the concrete is placed in them, or the dry wood will suck the moisture out of the concrete, and consequently the test will be of no real value. The author, however, prefers to place reliance upon the actual concrete work itself, and considers it better practice to test important beams with a chisel to ascertain their hardness; if this is done near the neutral axis it will not affect the strength of the beam.

Removal of Centering.

Generally speaking, it will be safe to remove the centering from under floor slabs in from seven to fourteen days after the concrete has been deposited. The sideboards of the beams and the boxing of columns may also be removed in about the same time. The bottom boards under beams of spans, say, up to 20 or 25 ft., should not be removed for at least four weeks, while for longer beams an extra length of time for hardening should be allowed. It is a good practice to nail a date tag on the beam troughing when the concrete was deposited in same. Should frost occur shortly after the concrete was deposited the duration of the frost must be added to the number of days given above for the removal of the centering. A rule should be made on all contracts never to touch the struts under the bottom boards of the beams until the concrete has set hard, or damage by shear is almost certain to result; workmen have sometimes been known temporarily remove these struts and replace them, but the risk of so doing is great with green concrete, and such action should be rigorously forbidden.

Frost and Heat.

It occasionally happens that work has to be finished within a given period irrespective of weather conditions, and if such work should be driven into the winter risk of frosts will be incurred. Where it is feasible, and time permits, the author thinks it better to stop work altogether, and protect that portion already done in the best manner possible. This can generally be accomplished by covering the concrete with hay or straw about 12 in. thick, with boards or matting on the top. Where, however, the work must be finished regardless of frost special precautions must be taken. Probably the simplest way is to heat the gravel and sand to about 70° or 80° (Fahr.), and use warm water of about 100° temperature in mixing the concrete. Immediately the concrete has been placed in position it must be protected by canvas tents connected with salamanders or fires by hot air pipes. The pipes should be placed near the concrete, so that the hot air from the fire can pass inside the tent formed by the canvas, and so raise the temperature sufficiently to protect the concrete from frost. During hot, dry weather, and especially where the sun can play directly upon it, the concrete will dry very rapidly, and provision must be made in such cases both for screening the concrete from the sun and also for keeping it moist. The surface of newly-laid concrete should be kept in a moist state for not less than six or seven days during hot weather.

It is frequently contended that ferro-concrete is in its infancy, and that sufficient time has not yet elapsed to form a reliable opinion as to its lasting qualities. The fact that such a large number of structures have been built, especially during the last fifteen years, and have answered their purpose perfectly, is in the author's opinion reliable evidence as to the strength and durability of these structures. It should always be remembered that if a ferro-concrete structure is inherently weak it will fail the first time it is loaded. As the concrete continues to harden for ten or fifteen years its strength increases also, and the author has yet to learn of a case where a ferro-concrete structure having been erected, say, for five years, has afterwards collapsed."

Trade Catalogue.

MESSRS. TWYFORDS (Hanley) have sent us three small pamphlets, one containing two illustrations of their "Centaur" siphonic water-closet, with earthenware cistern fixed a few inches above the seat, and operated in the one case by a press-button, and in the other by a lever handle; the noise of the flush is thus reduced very considerably. The second pamphlet deals with the "De Luxe" pedestal valve water-closet, which is a well-designed apparatus fitted with a slop-top and enclosure of white earthenware, the whole apparatus standing on a white enamelled fireclay floor-tray. The "Eurite" lavatory, shown in the third pamphlet, has a fascia of the same kind of white earthenware as the basin, and the legs and supports, of nickel-plated iron, are simple and neat. The pamphlets will be useful to architects.

Correspondence.

COMPETITION: NATIONAL MUSEUM FOR WALES.

SIR,—Can anything be done in the way of making a representation to the authorities with a view to an extension of time for this competition?

It is a great pity that architects should be hampered in dealing with a work of such importance by having to work at such pressure that they cannot do themselves justice.

The time allowed seems all too short, considering the time required in the initial study of the problem.

Further, the forthcoming election is bound to interfere with the conduct of business, as no doubt many architects will take a more or less active interest in such an important event.

"COMPETITOR."

January 1, 1910.

THE MAN WHO "THINKS OF BUILDING."

SIR,—The following may interest architects, especially those who are fond of advising the increase of "professional charges," as though an architect had any legal standing or claim for any remuneration.

Some months ago I received the following letter from a stranger:—

"DEAR SIR,—I am going to have a house or two built in ——, and want to start as soon as possible. I should like to see you personally. If you are over this way I would be at home by appointment any day.—Yours, etc."

To this I replied at once that I would call. I was busy, and it involved a railway journey of twenty miles. On arrival I met the writer. He explained his requirements, and, as is not unusual, expected a good house for very little money. I gave him hints and information; we went on the land, which I took particulars of. He gave me names of builders he wished to tender, plan of estate, etc. This map was, a day or two after, traced for reference, and a sketch plan with alternative made, and a rough tracing sent with explanatory letter. He replied "not to trouble; a builder called a day after you were here, and I think his plan will come out about what I require." (He afterwards went to another builder and asked him to send him some ideas.)

Hearing nothing more from him, but after some time learning that he was building, I sent in an account for 1*l.* 11s. 6d., being desirous not to give any ground for complaint. On this I received the following:—

"I was more than surprised on receiving a bill from you asking for 1*l.* 11s. 6d. I consider your charging me is absurd, as I never employed you in any way, and I never gave you any instructions to send me plans. It was your own idea forwarding the plans on to me that you had by you the same night. You told me that if I did not employ you you would make no charge. I was very particular, if you remember, in asking you that question, and you called at your own convenience, and made no special journey to see me. You viewed the land at your own instigation.—Yours, etc."

I replied:—

"Your letter is incorrect in every particular, and how you could imagine that a busy professional man should wait on you at your request and advise without any charge seems astonishing. As a matter of fact, you engaged me so far that I could have charged on a higher scale, but under the circumstances I merely put down a small sum for time and expenses. Please let me know by Tuesday next whether you decide to pay or dispute it.—I am, etc."

This was followed by County Court summons, and the case came on in a county town in the next county, involving a railway journey and other expenses. My solicitor said he could see no defence. After the usual miserable list of tallyman's cases, mine came on. The facts were stated, and the letters read. The defendant then got up and asserted that I merely called because I was in the neighbourhood; I was tired, and went to his house for a rest (!) I asked to see his land, and said I should charge nothing. He then in a hectoring voice cross-examined me, and when I demurred to his astounding insinuations, in an undertone, said, "Now, tell the truth."

"His Honour" mildly said I did not appear to have any claim. My loss is about three days' time, 1*l.* for court fees, fares, etc., besides clerk's time, also solicitor to pay. After the case was over a country merchant remarked: "I know him—smart chap; I wouldn't trust him with a hundred of my bricks!"

To another of the same "smart" set who has long disputed a small charge I have written making him a present of it, and wish I had done so in this case, although I can hardly imagine a more direct "retainer" or a clearer claim. A.R.I.B.A. OF THIRTY YEARS' EXPERIENCE.

THE LABOUR MARKET IN THE COLONIES.

THE January Circulars of the Emigrants' Information Office (31, Broadway, Westminster) state that the demand in *Canada* for emigrants is over till next spring, and no one should go there now unless they go at the invitation of friends or under a contract which will last during the winter. In *New South Wales*, an extensive strike of coalminers has been in progress in the coal-mining districts; at the time of writing, however, it has been partially adjusted. There are in several country towns very fair openings as a rule for mechanics, such as carpenters, bricklayers, masons, and blacksmiths, if they are not too specialised, and can afford to keep themselves till they find work; and railway navvies have been wanted. In *Victoria*, skilled men, such as carpenters, bricklayers, and blacksmiths, have been in demand. Mechanics should have with them upon landing enough money upon which to live until they can find work.

In *South Australia* there is a fair demand for carpenters, bricklayers, and blacksmiths, who, however, should, if they emigrate, have with them enough money to live upon until they secure work.

In *New Zealand* there has been a fairly general improvement in work for mechanics, but the local supply of men appears to be quite sufficient, and at Wellington many in the building trades have been unable to find employment. In *Cape Colony* the supply of all mechanics is ample, and is excessive in the building trades in large towns like Cape Town, East London, Kimberley, King William's Town, and Port Elizabeth. With regard to the *Transvaal*, there has been a distinct improvement in the labour market at Johannesburg, especially in the building trades.

PROJECTED NEW BUILDINGS IN THE PROVINCES.

ALTON.—Cottage homes; the Guardians.

Ashby-de-la-Zouch.—School; Mr. F. Day, architect, 8, New-street, Leicester.

Ayr.—House, Robbsland-avenue (1,100*l.*); Mr. A. C. Thomson, architect, Wellington-square, Ayr. House, Monument-road (2,100*l.*); Mr. W. Cowie, architect, Alloway-chambers, Ayr.

Benfieldside (Co. Durham).—School (3,000*l.*); Mr. F. E. Coates, architect, Shire Hall, Durham.

Birmingham.—Business premises; Mr. E. Harper, Ruskin-chambers, Corporation-street, Birmingham.

Brighouse.—Villa (1,200*l.*); Messrs. Sharp & Waller, architects, 32, Bradford-street, Brighouse.

Brodick.—Church and manse; Congregational United Free Church, Brodick.

Cambridge.—Rink; Messrs. Barrett & Driver, architects, 19, High Holborn, W.C.

Consett.—Chapel; the Trustees, Baptist Chapel.

Dirleton, N.B.—Extension to Gullam School (2,000*l.*); Mr. J. A. Carfrae, architect, 3, Queen-street, Edinburgh.

Dudley.—The following plans have been passed:—Brewing-house, High-street, Mr. P. E. Boughey; warehouse, Queen's Cross, Messrs. Chiltern Brothers; seven houses, Douglass-road, Messrs. Jones Brothers.

Eastbourne. — Convenience at cemetery; Borough Surveyor, Eastbourne. The Town Council has passed the following plans:—Alterations to British Queen, Seaside, for Messrs. Ballard & Co., Mr. Henry Ward, architect, Mr. G. L. Reid, builder; seven houses, Sidley-road, for Mr. W. Hookham, builder; alterations to Marine Hotel, Seaside, for the Southdown and East Grinstead Brewery Company, Ltd., Mr. W. Bussey, architect; alterations and additions to premises, Terminus-road, for the London and Provincial Banking Company, Mr. B. Earp, architect.

Eccles.—Two strong-rooms in Town Hall; Mr. T. S. Picton, Borough Surveyor. The following plans have been passed:—Four houses, Hall Bank, Winton, Mr. R. L. Harrison; five houses and one house and shop, Cromwell-road, also three houses, Nelson-street, Patricroft, Mr. W. H. Johnson.

Gloucester.—Additions, Sir Thomas Rich School (1,500*l.*); the Governors.

Handsworth.—Shops, Victoria-road; Mr. W Channing, builder, Hutton-road, Handsworth.

Harlow Green (Durham).—School (4,000*l.*); Mr. W. Rushworth, architect, Shire Hall, Durham; Mr. J. Milne, builder, Coatsworth-road, Gateshead.

Hensingham. — Church; Vicar, Parish Church.

Hockley Hill (Birmingham).—Factory; Mr. W. J. Whittall, builder, Lancaster-street, Birmingham.

Hull.—The Town Council has passed the following plans:—Three houses, Stoneferry, Mr. W. Finch; thirty-two houses, Dorset, Essex, Mr. J. W. Smith; five houses, Goddard-avenue, Mr. S. Lowden; warehouse, High-street, Hull Municipal Charity Trustees; Prince's Hall, George-street, for the New Century Animated Picture Company, Ltd.

Johnstone, N.B. — Extension, Cardonald School (4,000*l.*); Messrs. Kerr & Houston, Houston-street, Johnstone, N.B.

Kilton Hill.—Consumption block; Guardians, Kilton Hill Infirmary, Worksop.

King's Heath (Birmingham).—Church; Mr. H. Harper, architect, Long-row, Nottingham.

Kinlochleven.—Forty-eight houses; Messrs. McLaughlin & Harvey Brothers, Belfast.

Kiveton.—Additions to P.M. church (1,000*l.*); the Trustees, P.M. Church, Kiveton.

Liverpool.—Schools, Fladwys-street (10,000*l.*); Messrs. Sproat & Warwick, architects, 25, Lord-street, Liverpool.

Macclesfield. — Bakehouse at workhouse (1,300*l.*); Messrs. Gorton & Wilson, builders, Macclesfield.

Mansfield Woodhouse.—School, Oxclose-lane (1,200*l.*); Mr. L. Maggs, architect, Shire Hall, Nottingham.

Middlesbrough.—Pavilion; Secretary, Middlesbrough Golf Club.

Morayfield.—Rope works, for Messrs. Jas. Ross & Co., Ltd.

Northampton.—Proposed public elementary school, Victoria-park, also additions (3,000*l.*), Town and County school; Mr. S. Beattie, Secretary, Northampton Education Committee. The Town Council has passed the following plans:—Alterations to school, Kingswell-street, the Trustees, Beckett & Sargent's School; four houses, Mansfield-road, Messrs. E. & F. Gibbins; six houses, Glasgow-street, Mr. J. T. Powell; house and shop, Sharman-road, Mr. G. F. Sharman; house and bake-house, Harborough-road, Mr. A. J. Chown.

North Berwick.—High School (3,000*l.*); Mr. T. S. Robinson, architect, N. Berwick.

Northfleet.—Fire-station; Messrs. W. Archer & Son, builders, Northfleet.

Prestwick.—House (1,200*l.*); Mr. W. Cowie, architect, Alloway-chambers, Ayr.

Pwllheli.—Stables and depôt; Borough Surveyor.

Reading.—Workhouse buildings; Mr. W. Howell, architect, Blagrave-street, Reading.

Richmond-on-Thames.—Alterations at Holy Trinity School, Lower Mortlake-road, also alterations to County School for Boys; Mr. H. Sagar, Secretary, Richmond Education Committee.

Runcorn.—Twenty-four houses; Mr. Twist, jun., architect, Runcorn.

St. Ives (Cornwall).—Council offices; Surveyor, Urban District Council, St. Ives.

Salford.—Annexe to Town Hall, Cumberland-street (13,365*l.*); Messrs. Wilson & Roft, builders, Manchester. Proposed reconstruction of destructor buildings; Mr. J. Corbett, Borough Engineer and Surveyor, Salford. Extensions to Municipal Secondary School for Girls; Architect, Education Committee.

Sedgfield.—Twenty-seven houses, for Messrs. Pease & Partners.

Selby.—Cottage homes; the Guardians.

Selby Abbey.—New Transept; Mr. T. S. Nelathorne, builder, Selby.

Southall.—Cookery centre; Messrs. A. & B. Hanson Brothers, architects, Southall.

Stanley.—Council offices (4,000*l.*); Mr. J. Wilson, architect, 3, Coleshill-street, Sutton Coldfield; Mr. W. Southern, builder, Dipton.

Stonehaven.—Offices; Stonehaven Auction Mart Company.

Teignmouth.—Swimming-bath; Mr. C. F. Gittings, Council Surveyor, Teignmouth.

Tenter Banks.—School (4,600*l.*); Mr. W. Hutchings, architect, County Offices, Stafford; Mr. Lindsey Jones, builder, Darlington-street, Wolverhampton.

Tunstall (Staffs).—School, Goldenhill; Surveyor, Mr. A. R. Wood, Surveyor, Town Hall, Tunstall.

Ushaw Moor (Co. Durham).—Aged miners' homes (2,800*l.*); Mr. J. Johnstone, architect, Bishop Auckland; Mr. H. Baines, builder, Bishop Auckland.

Wayland.—Offices (7,000*l.*); the Guardians, Wayland.

Whaley Bridge. — Boiler-house. Blandolin Soap Works.

Whitley Bay.—Entertainment hall (15,000*l.*): Messrs. Cackett & Burns Dick, architects, Pilgrim-street, Newcastle.

Whittington.—School (2,500*l.*); Mr. W. Hutchings, architects, County Offices, Stafford: Mr. E. J. Chatfield, builder, Lichfield.

Whitton Village.—School (4,000*l.*); Mr. W. Rushworth, architect, Shire Hall, Durham.

Wrightington.—School (1,500*l.*); Messrs. Massey Brothers, builders, Pendlebury, Lancs.

Obituary.

BARON DE GEYMÜLLER.

We much regret to record the death on December 19, at his residence at 3, Louisenstrasse, Baden-Baden, of Baron Henry de Geymüller, well known by name and personally to many of the leading architects in England and on the Continent. He was rather a student and illustrator of architecture than an architect, and produced some remarkable and most valuable works on architectural history; more especially that on the "Projets Primitifs" for St. Peter's, accompanied by a portfolio of plates from studies by Bramante, Sangallo, and others, and his work on the Du Cerceaux. M. de Geymüller was a remarkable linguist, and all the principal European languages seemed to be the same to him. The following list of his titles and honours shows how remarkable and widespread was his reputation among the learned bodies of all countries:—"Chevalier de la Légion d'honneur, Commandeur des Ordres de la Couronne de Prusse, du Lion de Zaehringen et de la Couronne d'Italie, Correspondant de l'Institut de France, Associé Correspondant honoraire de la Société Nationale des Antiquaires de France, Membre Correspondant de la Société française d'Archéologie, Correspondant honoraire du Royal Institute of British Architects, Membre honoraire de l'American Institute of Architects, Membre Ordinaire de l'Institut Im-

périal Archéologique Allemand, Correspondant de l'Académie Royale des Beaux-Arts de Florence, Membre honoraire de l'Académie Royale des Beaux-Arts de Milan, de l'Institut des Beaux-Arts des Marches d'Urbino, du Cercle Bramante de Fermignano, de l'Académie de St-Luc, de l'Académie Impériale des Architectes de St-Petersbourg, etc." We have devoted some space on another page to an appreciation of his work and character.

MR. T. CRAWSHAW.

The death is announced of Mr. Thomas Crawshaw, builder, of 46, Ripon-street, Halifax. Head of the firm of Thomas Crawshaw & Co., builders, Mr. Crawshaw had become well known in the town and district by his extensive business connexions.

General Building News.

SCHOOL, ILFORD.

On Saturday last week the Goodmayes permanent Council School, situate in Green-lane and Airthrie-road, was opened by the Chairman of the Ilford Council, Mr. H. M. Thornton, J.P. The school has been built to the design of Mr. C. J. Dawson, at a cost of 16,200*l.*, and provides accommodation for 1,330 children. It consists of two floors. The infants' department is detached. The girls will occupy the top rooms, where there is a cookery centre; and a handicraft centre for the boys has been provided downstairs. There are five classrooms on each floor.

HIPPODROME, DERBY.

Work is to be commenced shortly on the erection of a hippodrome at the corner of Macklin-street and Green-lane, Derby. The architects are Messrs. Marshall & Tweedy, of Newcastle-on-Tyne.

WORKMEN'S INSTITUTE, TYDRAW.

Workmen's Institute premises, designed by Mr. W. D. Morgan, architect, Pentre, and carried out by Messrs. Charles Jenkins & Sons, contractors, Porth, have been opened at Tydraw, Treherbert. The building has cost about 3,000*l.*, and includes reading-room, meeting-room to seat 250 persons, billiard-room, containing two full-sized tables, and committee and magazine rooms.

WESLEYAN HALL IN TOOTING.

Mr. E. J. Saunders, builder, Croydon, has secured the contract for the erection of a Wesleyan hall (to seat 2,000) in Lower Tooting. Work has been commenced.

NEW BUILDINGS IN ABERDEEN.

The Plans Commitee of the Town Council has sanctioned the plans of the following new buildings in Aberdeen:—Two dwelling-houses on the west side of Orchard-road, for the Aberdeen Building Company, Ltd., per Messrs. Wilsons & Walker, architects; additions to the dwelling-house, No. 64, Rosemount-place, for Mr. Robert Leslie, per Messrs. Wilsons & Walker, architects; addition to granite works on the north side of Merkland-road East, for Mr. James Inglis, sculptor, per Mr. Duncan Hodge, architect.

ABERDEEN BUILDING TRADE, 1909.

For five years prior to the one just closed there has been a marked and steady decrease in the value of building contracts carried out until last year, when low-water mark, or at least a figure that is hoped will stand as the lowest water mark in the history of the building trade in Aberdeen was reached. The causes of this regrettable state of affairs have been recorded again and again, but over-building and speculation in new property have received a check from which they have not yet recovered, and until they have shaken themselves free of the self-sought burdens with which the property market is at present oppressed no substantial betterment can be looked for. The building trade has, of course, suffered from the unseasonable weather which has marked the progress of the year. A protracted winter rendered building operations almost impossible, and at any rate uncertain, and so they continued until May, while a snowstorm in October curtailed the full working period, and rendered the lot of the tradesmen still more hard than it might otherwise have been. There is very slight—almost imperceptible—indications of improvement, and certainly should there be a change for the better it will not be immediately felt. Again, there is a mournful cry of the lack of large contracts during the year, and even the improvements of last year have not been continued, so that in this direction matters have fallen comparatively flat. The outstanding feature of the year has been the erection of roller skating-rinks. Carpenters, painters, and plumbers particularly, and, in some degree, masons, have shared in the good things which roller skating has brought, and it has given a much-wanted impetus to their trades at a time when stagnation would have prevailed. There has been no work of outstanding importance from the point of view of size and value, but the plans sanctioned during the year include additions and alteratons to the Royal Infirmary to the extent of 16,000*l.* in connexion with the erection of the surgical pavilion, and an out-patient department. There is also an 11,000*l.* contract for alterations on and additions to the City Hospital. The public buildings with alterations number only one more than last year, but there is an increase of 19,000*l.* in the value of the work contracted for, so that conditions are assuming a more healthy aspect when compared with a year ago, but, of course, it has to be borne in mind that that was the worst on record, and presented a state of things unparalleled in the history of the building trade in Aberdeen. Several large buildings included in last year's review have only reached completion during the present twelve months. A large number of additions and alterations to premises were carried out in various parts of the city. The statistics compiled by the Burgh Surveyor's department show the extent of buildings contemplated, and for which plans have received the sanction of the Town Council. These returns, kept by Mr. T. Byres, Assistant Burgh Surveyor, of the number and value of the plans passed reveal an encouraging state of matters. Compared with the preceding year, there is an increase of nineteen in the number of plans passed, and the total value of the contracts amounts to 132,604*l.*, an increase of 41,332*l.* The value of the plans in 1907 was 143,432*l.*; in 1906, 165,358*l.*; in 1905, 218,137*l.*; and in 1904, 272,452*l.* The amount for last year was made up as follows:—Sixty new dwelling-houses, 43,080*l.*; eighty-four alterations and additions to dwelling-houses and business premises, 16,153*l.*; twenty-five new business premises, 30,571*l.*; thirteen public buildings and institutions, including alterations and additions, 41,000*l.*; seventy-five shop-fronts, shops, outhouses, and sanitary alterations to existing premises, 1,800*l.*—*Aberdeen Free Press.*

NEWCASTLE BUILDING TRADE.

Local builders declare that 1909 has been the worst year for business they have known for many years; in fact, some aver that trade has never been at such a low ebb. The strikes in the shipbuilding and engineering industries are considered to have had a lot to do with accentuating the depression, and now the coming General Election is said to have had a disturbing effect on prospective speculation. People are waiting to see which party is returned to power before they enter upon new building schemes. Trade generally has been so quiet, it is asserted, that tradesmen have been afraid to embark on undertakings of reconstruction. They are waiting for better times ere they decide upon outlay in this direction. One big firm of contractors, which in normal trade conditions employs about 300 men, has less than one hundred employees at the present time. Other builders of note tell similar stories regarding the scarcity of work, although it is generally conceded that the prospect for the present year is brighter than was the outlook at the end of 1908. Competition among the leading contractors is said to be keener than ever it has been, and for the smaller jobs there is an increasing number of competitors in the field. A large number of "small men" have sprung up in recent years, and the tendency is, it is stated, to cut prices in every direction. The depression in the building trade set in about three years ago, and got gradually worse until last year, which, as we have said, has been the worst yet experienced. Last month there have been rather more inquiries than in the preceding months of the year, and this has stimulated hope to some degree that trade is on the upward grade and that further expansion will be witnessed in the new year.—*Newcastle Chronicle.*

BUILDING OPERATIONS IN BIRMINGHAM AND DISTRICT

The Birmingham building trade throughout 1909 has been quiet, the *Birmingham Post* states. Usually more than a thousand new dwelling-houses are built every year, notably on the outskirts of the city, but this year the number of plans deposited with the City Surveyor and the number of contracts executed, even for small house property, has not been equal to the average. In the centre of the city very little has been done in the erection of large or small property, but considerable alterations have been made to existing houses through the influence of the Housing Committee. A certain amount of street widening has been accomplished on the Edgbaston side of the city, and alterations with the view of effecting similar improvements have been carried out in Garrison-lane, Witton-street, Great Barr-street, and Fazeley-street. Quinton is the latest suburb to be acquired by the city, and here building operations are likely to be brisk in the future. The plans for the construction of new roads for the erection of a considerable amount of cottage property, which were approved by the Hales Owen District Council, have been taken over by the Corporation, who also have charge of the inspection of the dwelling-houses now in course of erection in the centre of the new area. The largest contract undertaken this year was for a block of seventy-seven houses in Swanage-road and Somerville-road, Small Heath; and another big scheme which is in course of completion was for a group of seventy-four houses in Aubrey-road, Small Heath. The year will be memorable for the opening of the new University buildings at Bournbrook, but apart from that important enterprise the number of public buildings erected or projected since the previous Christmas has been much smaller than usual. A commencement has been made with the scheme for the extension of the Council-house by the provision of an additional building on the site acquired in Edmund-street, Congreve-street, and Margaret-street. The scheme will keep the builders employed for a very long period, but good progress has been made with the work. The requirements of the Education Committee have not been excessive, for only one new school has been opened, and that in Leigh-road, Washwood Heath. Improvements have been effected in many of the existing schools, and additions have been made to other buildings, while the preliminary work connected with the erection of new Council schools at Saltley and Nechells has been completed. A large number of additions and alterations have been made to warehouses and business premises in the city during the year, but the erection of new buildings has been on a smaller scale than usual The growth of the suburbs of Birmingham has continued without intermission during the year. Although trade has been dull the erection of new buildings—chiefly dwelling-houses—has proceeded steadily on the borders of Staffordshire, Worcestershire, and Warwickshire. In the urban district of Handsworth eighty-seven plans were passed, representing 290 houses and twenty-one temporary buildings, the most important being designs for a new cemetery chapel, and a science and art department at the Birchfield-road Council school. No fewer than 390 houses have been erected, and a large proportion of them are let at rents averaging about 7s. each per week. In addition there are 150 houses in course of erection. There is practically no further room for extension in the borough of Aston Manor. The whole of the available land for building is almost covered with houses and business premises. To such an extent is this the case that only seventy-four plans were passed during the year for new structures, and only twenty-two buildings were completed. The number of buildings in course of reconstruction or to which alterations are being made is fifty-two. Building operations have been extensively carried on in the district governed by the King's Norton and Northfield Urban District Council. During the year the number of plans approved by the local authority has been 239, as compared with 259 in the previous year. These plans represent 487 houses, six new roads, thirty-two temporary buildings, and 122 other buildings, the latter including public buildings, alterations, etc. The total number of houses erected during the year is 400, and most of them are of the artisan class, and 260 others are in course of erection at the present time. Building operations are steadily proceeding on the Bournville Tenants' Estate at King's Norton, as well as on the Bournville Estate.

BUILDING AND MUNICIPAL WORK AT NOTTINGHAM.

There has been little cause for complaint so far as the building trade is concerned during the past year, according to the *Nottingham Express.* Both in number and importance the buildings erected have been well up to the average. The total number of new buildings put up and passed by the Building Surveyor of the Corporation was 1,772, or 100 more than during 1908. Of these 1,023 were dwelling-houses, compared with 1,009 built during the previous year. The Corporation approved fifteen new streets. Building operations have been carried on, and are still briskly proceeding, in the districts of Sherwood, Forest Fields, Carlton-road, and Blue Bell Hill, and Basford and Bulwell. The principal building work at present in progress in the city is the Albert Hall Institute, restaurant and shop on Long-row, shops and offices in Theatre-square, offices on Low-pavement, and factories in Garden-street and Nottingham-road. The most important municipal scheme evolved during the year by the City Council has been the proposed widening of Carrington-street and Greyfriar-gate, Parliamentary powers for which are now being sought, and which may be

commenced towards the close of 1910. It is estimated that the scheme will cost the city between 30,000*l.* and 40,000*l.* The extension of the City Asylum has recently been commenced —a 10,000*l.* contract; and only the formal sanction of the Local Government Board is awaited for a start to be made with the new municipal cemetery on Wilford-hill, of which the cost of laying out, with chapels, lodges, etc., is estimated at 22,000*l.* A crematorium is included in the scheme, but an undertaking was given that this should not be proceeded with until the City Council have had an opportunity of again discussing the matter.

YORKSHIRE BUILDING TRADE IN 1909.

The condition of the building trade in Yorkshire during the past year has been a repetition of what has occurred for several years past, excepting that the latest is the worst of all. Comparatively little work has been done, says the *Yorkshire Post*, and profits generally are said to have been small, while there seems little disposition now to launch out into either public or private enterprise. The erection of skating-rinks all over the country has found a certain amount of employment, but, of course, most of these structures are not of a very substantial kind. Stone, for which there is a poor demand, is cheap, but the price of bricks has been well maintained. The latest issue of the *Board of Trade Labour Gazette* states that returns received from 689 firms employing 41,131 workpeople at the end of November show that, compared with both a month earlier and a year ago, there was a decrease in the number of workpeople in Scotland, the northern counties, Yorkshire, Lancashire, and Cheshire, and that in the rest of the kingdom there was an increase in the number employed. Pretty much the same story of slackness comes from all the chief centres in Yorkshire. In Leeds things have been quiet all through the year. One or two firms have had fairly good contracts outside the city, but in Leeds itself big undertakings have been very scarce. One of the few contemplated large schemes is the teachers' training college and hostel in Beckett's-park, the plans for which have been adopted. Figures obtained from the Building Inspector's office show a falling off in the number of buildings of all descriptions, except detached and semi-detached villas, completed during the past twelve months. A similar discouraging report comes from Bradford, where, apart from the building of new textile extension of the Technical College and the erection of new warehouse premises in Sunbridge-road, there is little activity except in the way of alterations here and there. Comparatively few dwelling-houses have been erected. With many mills working short time there is little prospect of further building operations in this direction, whilst the speeding up of machinery has diminished the need for larger works even with increased trade. Huddersfield reports that trade has been quiet, but satisfactory compared with other towns. The only large work in course of erection has been a Baptist chapel and school. There has been a good deal of speculative house building, but it is falling off now. Such property has sold very well. There has not been much activity in the Halifax district. The building of St. Hilda's new church at Kingston is the biggest contract that has been let, and the erection of the church was commenced two or three months ago. Additions to the Zoological Gardens have also provided work for builders. Some speculative building of dwelling-houses on the Greenroyd and Clapton estates has taken place, but there is no shortage of houses in the town. At Harrogate the building trade, which is regarded as the staple industry, has been quiet. A few good villas have been put up, but there has not been much progress in smaller property. Speculators and builders have had little encouragement, for property has not sold well. The prospect of a large new hydro and a couple of extensive school buildings and additions to the Corporation baths form a hopeful opening for the ensuing year. The building trade in Hull is in a very unsatisfactory condition, and there is no prospect of immediate improvement. A vast number of unemployed are on the books of their unions. A large flour mill has been completed, and the only buildings of any note in progress are the Town Hall extension, which will occupy perhaps another two years; the City Hall and Art Gallery, which is approaching completion: and several Council schools. All these are of an unproductive nature. There are few, if any, signs of extensive private enterprise. In the York district the year has been particularly slack. The North-Eastern Railway Company have carried out extensive alterations to York Station, and are building two new watertowers. The principal activity of the year, however, locally has been in the direction of small alterations and additions to existing buildings, which have been very extensive.

LEITH BUILDING TRADE.

Mr. J. R. Findlay, Burgh Surveyor, Leith, in his annual report, states that depression in the building trade still continues, although the year just closed shows a slight improvement on the previous two years. The estimated value of buildings for which warrants were granted was 61,272*l.*, as compared with 56,200*l.* in 1908, 58,674*l.* in 1907, 179,000*l.* in 1906, and 92,000*l.* in 1905. The warrants include two new Doocker schools for the School Board at Balfour-place and Hermitage Park, and a new hall for the Salvation Army at Bangor-road. The tenements passed were for houses mostly of the two and three roomed type, providing in all for seventy-six tenants. Of flatted villas there were altogether twenty-one, in addition to sixteen self-contained villas.

SHIPLEY BUILDING TRADE.

The building trade in Shipley has been exceptionally quiet during the past year. In the past Shipley has grown so rapidly that building has come to be looked upon as playing a very important part in the industrial progress of the place. For two or three years past there has been a considerable falling off in this direction, but the past year has been possibly the worst for a great many years. Notwithstanding this fact there have been some noticeable extensions in some of the residential quarters.—*Yorkshire Observer.*

BRADFORD BUILDING AND STONE TRADES.

Those engaged in the building trade in Bradford have (says the *Yorkshire Observer*) had a doleful experience during the past twelve months. There was depression both in 1907 and 1908, and it was expected that the bottom had been reached last year, but things got to a lower level in 1909 than ever. Indeed, for the past eight years there has been a steady decline, and although there have been periods of depression before they have never lasted for so long a time. Few new public works or industrial premises have been erected, and there are no tenders out for buildings of that description. With regard to the erection of house property, speculative builders have had a bad time of it. The only activity, and that by no means on a large scale, has been in Duckworth-lane, Frizinghall, Allerton, Bradford Moor, Eccleshill, and off Manchester-road, but they are mostly houses of the smaller type. As to the local stone trade, Messrs. Moulson & Mellors, Ltd., report that the demand throughout the year has been very quiet but steady, no large orders coming to hand. The prices have consequently again been extremely low. At the present time there appears to be a distinctly better prospect in view. Several new works, extensions, etc., are reported to be under consideration; and if the London and Midland trade improves the quarry masters will have passed the turning which has taken three or four years to reach. Prices have ranged as follow:—Self-faced flags, 1½ in., 1s. 5d. to 1s. 7d. per super. yard; 2 in., 1s. 11d. to 2s. 3d.; 2½ in., 2s. 5d. to 2s. 7d.; 3 in., 2s. 10d. to 3s. 2d. Tooled flags, 2½ in., 3s. 6d. to 3s. 9d.; 3 in., 3s. 9d. to 4s. Ashlar, 1s. 6d. to 1s. 9d. per cubic foot. Outside wallstones, 38s. to 44s. per rood; pitched-faced, 38s. to 46s.; inside wallstones, 18s. to 22s.

IMPROVEMENT IN THE BUILDING TRADE OF BELFAST.

According to the returns prepared by Mr. H. A. Cutler, the City Surveyor, and his staff, there was more activity in the building trade during 1909 than in the preceding year. In the year just closed plans were approved for 582 houses, eight factories, seventy-six other large structures, and 235 smaller buildings. The estimated cost of these was 339,830*l.*, compared with 274,925*l.* in 1908. It is noteworthy that the plans which were submitted show that in every direction a better class of building is now being erected, and this fact in a great measure accounts for the increased estimate. An important scheme has been decided upon by the Corporation. It relates to the improvement of a number of unhealthy areas by the removal of the existing houses and the construction of new streets. The areas are described as those of Hemsworth-street, Boundary-street, Gardiner-street, Hamill-street, Stanley-street, Matilda-street, Little York-street, and Christian-place. The scheme, which has been promoted under the Housing of the Working Classes (Ireland) Acts, 1890 to 1908, is estimated to cost 116,342*l.*

BUILDING IN DARLINGTON, 1909.

From returns prepared by Mr. George Winter, the Borough Surveyor, it appears that the building of houses has gone on as actively as ever in Darlington during the past year; and, as a matter of fact, is above the average for the past nine years, only being exceeded in 1905, when the number of houses certified by the Inspector of Works was 457, and in 1903 and 1906. Very few buildings of any importance and size have been erected during the year. The outlook for the trade for the present year is fairly promising. Although there are not any buildings of large size to be erected, there is certain to be a good deal of building done at the north end of the town, as, owing to the extension of the North-Eastern Railway works, more houses will be required for the workmen, especially in view of the fact that there are very few houses empty at the present time. Then there is also a new secondary school to be built, a new domestic centre at Beaumont-street, and a new mechanical laboratory in connexion with the Technical College.

BUILDING IN GLASGOW AND OTHER SCOTTISH CENTRES DURING 1909.

The building trade has been in a depressed condition during the year all over the country. In most of the large towns (says the *Glasgow Herald*) the number of unlet houses remained abnormally high. In Glasgow building operations have been on a very restricted scale so far as tenement and villa property is concerned. The returns of the Glasgow Dean of Guild Court show that for the year ending August 31 last 369 linings were granted, representing property to the value of 902,613*l.*, while the total valuation of the subjects dealt with during the previous year only amounted to 894,716*l.* The increase is accounted for by the fact that linings for several large public buildings were passed during the year. The total valuation of new work for the past year amounted to 792,402*l.*, and of additions to and alterations on existing property to 110,211*l.* Although the value of the linings passed by the Dean of Guild Court up to the end of August shows a slight increase on the two previous bad years, it was less than half of the average of the ten years preceding that period. In Dundee the trade has been quiet, and prospects are only moderately bright. On account of the large number of unoccupied houses a setback has been given to the building of tenement property, and the trade in villa property is also dull. For the fourth year in succession the building trade in Paisley has been exceptionally dull. A general depression has prevailed, despite the fact that the valuation of linings passed at the Dean of Guild Court showed an increase of 4,630*l.* over the total for 1908. There were in all seventy-four linings granted, but about thirty of these were minor cases. The total valuation of linings was estimated at 90,260*l.* In the Greenock district employment has been general during the year, and trade up to the average. Work at the new torpedo factory at Fort-Matilda has been continued steadily, a large number of masons and other tradesmen having been employed. A survey of the warrants granted by the Dean of Guild Court shows a total value of about 90,700*l.* Work for the first part of the coming year will be good, and there is a hopeful prospect of the building trade being busy. The total value of the work carried out in Perth is much less than that of the previous twelve months. The only buildings of importance in course of erection are the new City Hall and the Northern District School, the latter being nearly completed. A new water reservoir has been constructed by the Corporation at the Burghmuir, and the Town Council have practically resolved to proceed with the erection of a new central tramway depôt and a new drainage scheme for Burghmuir.

Stained Glass & Decoration.

WINDOW, CHICHESTER CATHEDRAL.

A new window has just been placed over the monument of Bishop Shurburne, displaying upon a groundwork of plain glass of the usual church type the arms of the following prelates of Chichester, in five lights:—First light: Ralph Nevill, 1224-1244; St. Richard, 1245-1253; and Gilbert de S. Leofardo, 1288-1305. Second light: John Langton, 1305-1337; and Robert Stratford, 1338-1362. Third light: Richard Mitford, 1389-1395; Simon Sydenham, 1431-1437; and Edward More, 1528-1531. Fourth light: Adam Moleyns, 1446-1450; and John Arundel, 1459-1477. Fifth light: Edward Story, 1478-1503; Robert Shurburne, 1508-1536; and George Daye, 1543-1556. In the head of the window is inserted the well-known arms of the See. This window includes the only fragment of old glass remaining in the cathedral.

Appointments.

Mr. C. H. Croxford, Assistant Surveyor, has been appointed Surveyor to the Wood Green District Council, in succession to Mr. C. J. Bunyon, lately deceased.

Mr. Walter M. Tattersall, M.Sc. (Victoria), has been appointed Keeper of the Manchester Museum.

Miscellaneous.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.

Mr. S. W. Haughton, quantity surveyor, of 22, Courtenay-street, Plymouth, is taking his son, Mr. H. S. Haughton, into partnership as from January 1, 1910, and in future the firm will be known as "S. W. Haughton & Son."——Messrs. Walter Lawrence & Son, contractors, have removed their offices from Canal Works, Waltham Cross, to 21, Finsbury-circus, E.C.——Owing to the ill-health of the director, Mr. E. L. Johnson, the business of Farwig, Johnson & Co., of 7, East India-avenue, is discontinued as from December 31, 1909, and the iron and steel department will be taken over by Messrs. Wyndham Green & Co.——Messrs. Garston Frères, of Alost, Belgium, sculptors and marble workers, have opened London offices at 10, Adam-street, Adelphi, W.C., under the management of Mr. W. Wrathall, who has for fourteen years represented them in this country.

LOCAL TAXATION AND THE BUILDING TRADE.

At a recent meeting of the Architectural Section of the Royal Philosophical Society of Glasgow Mr. John A. Mactaggart, builder, read a paper entitled "Is Local Taxation a Burden on the Building Trade?" At the outset he referred to the Government Commissions appointed with regard to local taxation. They all stated that the original intention of local rating was that it should be a kind of local income-tax. They admitted that it generally failed in being this, and seemed to indicate that but for the difficulties in assessing incomes locally this would be the fairest plan. In their search for information it was not apparent that the Commissions had gone beyond the British Isles. All the reports agreed with Mr. Goschen's dictum, that the consumers of the commodity called a house were too heavily taxed, but as the Commissioners were neither interested in buildings nor particularly in health considerations they accepted the inequality of local taxation as one of the things that must be. The lecturer drew a distinction between local rates, which consisted of services like gas and water that could be done or paid for direct by the tenant, and communal services shared in by householders and non-householders alike. He brought out the average rates in Glasgow, owners and occupiers together, as being 6s. in the pound. As to the contention that all local rates fall on the ground owner, he pointed out that this was only so when the owner of ground or property was secured from competition, or where there were large site values. A single shop in Sauchiehall-street might be worth 200*l.*; a shop of the same size at Shawlands might be worth only 50*l.*; and the structural value of each might be 25*l.* per annum. If tenants' rates were abolished the Sauchiehall-street man would save 40*l.*, and the Shawlands man only 10*l.* This difference in all probability would be added to the rent at the end of the lease. But in houses the sites for which had little ground value the influence of competition on the new ground would enable the tenant to secure the advantage of a reduction in his rates. Taking the average price of ground paid by him for tenements in five different districts of Glasgow, he found that although the average price was equal to the extortionate one—to forty times the agricultural value of the ground—it only amounted to a charge of 1s. 5d. per 1*l.* on the rent of the tenement house, so that for every 24s. paid by the tenant in rent and rates 1s. 5d. was ground value, 16s. 7d. was building rent, and 6s. was rates. The financial burden, of course, was on the tenant, but the tax acted on the building trade in the same way as the extra tax on whisky was said to have acted—it reduced the demand. He described as fallacious the contention that house rent was the best measure of a man's income, and pointed out that in Germany 50 per cent. of local taxation was got from the income-tax. A wealthy man with an unearned income of 5,010*l.* would in Germany pay on the average 425*l.* of local taxation, whereas in this country, if residing in a 200*l.* house, he would pay 60*l.*, while the working man who might pay here between 3*l.* and 4*l.* would pay in Germany only 18s. 6d., and less if he had two or more children to support. He advocated the adoption of the German system.—*Glasgow Herald.*

"MURIBLOC" PARTITION SLABS.

As the name implies, these slabs or blocks are intended for partitions, but may also be applied to the construction of external walls in bungalows, sheds, greenhouses, and other light buildings. The slabs are formed of concrete, composed of clinker, crushed and screened to ¼-in. gauge, and Portland cement complying with the British Standard Specification. The process of manufacture is conducted almost entirely by mechanical appliances, the proportions of the concrete being maintained in accordance with a predetermined standard, and discharged from the mixer into the feed hopper of a patented block-making machine by which the required amount of concrete for one slab is automatically cut off, moulded under heavy pressure into form, and delivered as a complete slab upon a table, for removal to the seasoning racks. After hardening for

twenty-one days the slabs are ready for use. Each slab is grooved and tongued on all its edges, the faces affording a good key for mortar, and, being absolutely true, the slabs facilitate the erection of partition and other walls with accuracy and rapidity. One coat of plaster ½-in. thick is usually sufficient as an exterior finish. A convenient feature is that nails and screws can be inserted where necessary. Those of our readers who are interested in the construction of fire-resisting and other partitions can inspect at the works of the Muribloc Company, Princes Wharf, Wandsworth, a small building which has been erected for the purpose of demonstrating the adaptability of the slabs for internal and external walls. The slabs are made to the standard dimensions of 27 in. by 15 in., in the three thicknesses of 2¼ in., 3¼ in., and 4¼ in. respectively.

HANDICRAFTS AND CRAFTSMANSHIP.

In a letter addressed fifteen years ago to the editor of the *British Workman*, the late W. E. Gladstone wrote as follows:—

"I think there is among parents in what are called the labouring classes too much anxiety to take their children out of hand labour and to transfer them to head labour. But a great deal of what is called head labour is not worthy of the name, whereas hand labour is in many branches capable of great elevation. Take, for example, the connexion of the mason's trade with the sculptor's art, and the relation between the carpenter and the wood-carver. Further, the higher hand labour is very much better paid than the lower head labour."

THE MIDDLESEX HOSPITAL.

In our issue for December 25, page 702, under the heading "New Buildings in London," we stated that additions to the Middlesex Hospital, Mortimer-street, W., were to be made, "Mr. E. T. Hall, architect." It appears that this is incorrect, as the work that Mr. Hall is to carry out, although it will be administered from the Middlesex Hospital, will not be a part of that institution, but will be the Barnato Institution. Money for building and for maintenance will be found by the Barnato Trust. We may add that Mr. Keith D. Young, of Southampton-street, Bloomsbury, is the architect to the Middlesex Hospital, having held that position for over twenty-five years.

AN ENGINEERS' AMALGAMATION DINNER.

A dinner will be held at the Waldorf Hotel, on Wednesday, January 19, to celebrate the amalgamation of the Society of Engineers (established 1854) and the Civil and Mechanical Engineers' Society (founded 1859). The distinguished guests who have already notified their intention of being present include Sir William H. Mahoney Christie, K.C.B., F.R.S., Sir Wm. Church, Bart., Sir Richard Douglas Powell, K.C.V.O., Professor C. V. Boys, F.R.S., Dr. Gisbert Kapp, Mr. Oliver Imray (President, Chartered Institute of Patent Agents), and others. After the dinner a programme of music will be given under the direction of Mr. Chas. Capper. In view of the unique character of the event, and the fact that ladies may be present, a good attendance is anticipated, especially as this is the inaugural function in connexion with the new Society, which has been formed by the union of the two Societies above mentioned.

CARPENTERS' HALL LECTURES.

The Worshipful Company of Carpenters have arranged the following list of free lectures, on Thursdays, which are to be given in Carpenters' Hall, London-wall, as follows:—February 10, Mr. A. G. Temple, F.S.A. (Director, Guildhall Art Gallery), "The Pre-Raphaelite Movement in England"; February 17, the Rev. Walter Marshall, M.A., F.S.A., "English Medieval Fonts and Monuments"; February 24, Mr. J. Alfred Gotch, F.S.A., F.R.I.B.A., "Northamptonshire Houses of the Early XVIIth Century"; March 3, Major B. Baden-Powell, F.R.A.S. (V.P. Aeronautical Society), "Aerial Navigation"; March 10, Mr. W. Harding Smith, R.B.A. (Hon. Librarian, Japan Society), "Japanese Decorative Art"; March 17, Mr. Augustine Henry, M.A., F.L.S., "The Study of Trees." The lectures will be illustrated by lantern photographs, and will commence at eight o'clock.

MORE DIARIES.

Messrs. Hudson & Kearns, Ltd., Stamford-street, S.E., have sent us specimens of their Architects' and Builders' Diaries for 1910, which arrived too late to be noticed last week. Nos. 12 and 13 are for architects, surveyors, civil engineers, etc., with over two specially ruled and printed pages per day respectively, containing, in addition to the information usually to be found in a diary, a great deal of information of use to professional men interested in the building and allied trades. In addition to other matter the diaries contain the following:—Cases decided in the superior Courts of Justice during the legal year from November, 1908, to August, 1909, of interest to the profession; professional practice and charges of architects; list of metropolitan surveyors and districts, with official and private addresses; list of architectural, surveying, and engineering institutions, with their Presidents, etc., and a useful index. The Builders' and Contractors' Diary (No. 11) is also a neat and useful diary. It contains a series of practical tables of daily use in the calculations necessary in a builder's office; a series of tables on the valuation of property, leases, etc.; estimate tables, or a new form of ready reckoner of use in carrying out estimates, checking invoices, etc.; a wages table; tables of scantlings, etc., for floors and rooms; method of cubing, with illustrated diagrams, and other information clearly printed and arranged. We have much pleasure in again calling attention to these excellent and well-known diaries.

"The Sanitary Record Year-Book and Diary for 1910" (London: Fetter-lane, E.C.) is the twenty-eighth annual issue of a useful and well-arranged work, which contains a *resumé* of the various Parliamentary measures passed during the past year. We also notice a short list of health resorts, memoranda for sanitary engineers and surveyors, lists of sanitary and allied associations and bodies, and much information of a general character. The diary portion of this excellent work is interleaved with blotting-paper.

ROYAL WARRANT HOLDERS.

Revised lists of tradesmen, corrected up to January 1, who hold Royal Warrants, have been issued from Buckingham Palace. The list of tradesmen holding warrants from the Keeper of the Privy Purse includes the following:—John Allen & Sons, Ltd., building contractors, of London; Barnard, Bishop, & Barnards, Ltd., gates and fencing manufacturers, of Norwich; Boulton & Paul, Ltd., manufacturers of wire netting, of Norwich; W. H. Brown, builder and contractor, of King's Lynn; Thomas Crapper & Co., sanitary, warming, and ventilating engineers, of London; G. & T. Earle, Ltd., cement manufacturers, of Wilmington; Gawthorp & Sons, art metal workers, London; Humphreys, Ltd., iron building manufacturers, of London; Johnson Brothers & Co., Ltd., manufacturers of iron fencing, London; Mackenzie & Moncur, Ltd., hothouse builders and heating engineers, of Edinburgh; Pulham & Sons, makers of terra-cotta and artificial rockwork, London; Frank P. Potter, gate and hurdle manufacturer, of King's Lynn; John Thompson & Co., Ltd., building contractors, Peterborough. The list of tradesmen holding their warrants from the Lord Chamberlain includes the following:—Dent & Hellyer, sanitary engineers, of London; Geo. Jennings, sanitary engineers, London; Minton, Hollins, & Co., manufacturers of encaustic tiles, of Stoke-on-Trent; Josiah Moore & Sons, ventilator manufacturers, of London; Steintz & Jefferies, parquet flooring manufacturers, of London; Teale Fireplace Company, fireplace manufacturers, of London; R. Waygood & Co., Ltd., lift manufacturers, of London.

SOCIETY OF ARTS.

Sir George Birdwood will preside at a meeting of the Indian Section of the Royal Society of Arts on January 13, when a paper on "Art Administration in India" will be read by Mr. E. B. Havell, late Principal of the Calcutta School of Art. Original paintings of the Mogul school and examples of the new school of Indian painting will be exhibited. The Mogul paintings are on loan from the Calcutta Art Gallery, and are about to be returned to India.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointments, xvi Auction Sales, xxii.

Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.**

Competitions.

JANUARY 1-MARCH 1. — **Leeds.** — PREMISES. — The Directors of the Leeds Industrial Co-operative Society, Ltd., invite architects to submit competitive drawings and estimates for new business premises and offices, to be erected on the site of the old "Mercury" office, Albion-street, Leeds. Premiums of 100*l*., 50*l*., and 25*l*. respectively are offered, and will be awarded to the authors of the designs and plans placed first, second, and third by the assessor appointed by the directors. Conditions of competition, etc., will be forwarded on application to the Secretary, on receipt of stamped addressed foolscap envelope, accompanied with a deposit of 2*l*. 2s.

JANUARY 11.—**Arklow, County of Wicklow.**—ARTISANS' DWELLINGS. — The Arklow Town Commissioners invite tenders for the preparation of plans, specifications, and estimates for the erection of artisans' dwellings. Any further particulars that may be required can be had on application to Mr. Joseph W. Barrett, Town Clerk.

JANUARY 27. — **Southampton.** — PAVILION ON THE COMMON.—The Corporation invite designs from inhabitants of the Borough for the erection of a pavilion on the Common at a cost of not exceeding 500*l*. Particulars and conditions may be obtained upon application at the Town Clerk's Office. A premium of 10*l*. will be awarded to the architect whose design shall be chosen by the Public Lands and Market Committee of the Council, and a second premium of 5*l*. will be awarded.

JANUARY 31. — **Cardiff.** — NATIONAL MUSEUM.—The Council invite competitive designs for the erection of a new National Museum at Cardiff. Premiums of 200*l*., 150*l*., and 100*l*. for second, third, and fourth places. Particulars on receipt of a deposit of 2*l*. 2s. from Dr. Wm. Evans Hoyle, Director of the Museums, City Hall, Cardiff. For further particulars see advertisement in our issue of August 28.

FEBRUARY 1. — **Oldham.** — PROPOSED EXTENSION OF THE TOWN HALL.—The T.C. invite competitive designs for a proposed extension of the existing Town Hall from architects practising or residing within the Borough. A plan of the site, together with instructions and suggestions for the guidance of architects, may be obtained on application to Mr. E. C. Foote, the Borough Surveyor, on payment of 1*l*. 1s. Premiums of 50*l*., 30*l*., and 20*l*. respectively will be awarded to the authors of the designs which are selected as first, second, and third in order of merit, and a sum of 5*l*. will be paid to all unsuccessful competitors who send in a complete set of plans in accordance with the instructions.

MAY 31. — **Karachi.** — MUNICIPAL OFFICE. — The Municipality of Karachi invite elevation designs and detailed plans and estimates for a new Municipal Office. For further particulars see advertisement in our issue of December 25.

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

JANUARY 8-FEBRUARY 7. — **Pettaugh.** — SCHOOL.—East Suffolk County Education Committee invite tenders for the erection of a new school for about sixty children at Pettaugh, near Stowmarket. Names to Mr. W. E. Watkins, Secretary, Education Office, County Hall, Ipswich, accompanied by a deposit of 1l. 1s. (cheques to be made payable to Mr. W. E. Watkins).

JANUARY 8.—**Pontypridd.**—VILLAS.—Sixteen large villas, proposed to be erected on the Eglwysilan-road, Pontypridd, for the Tygwyn Villa Building Club, Pontypridd. Names to Messrs. T. E. Richards & Kaye, architects and surveyors, Pontypridd, accompanied by a deposit of 2*l*. 2s. for bills of quantities.

JANUARY 10.—**Berwick-upon-Tweed.**—ADDITIONS TO FARM BUILDINGS.—For additions to farm offices on Folly Farm, Berwick-on-Tweed. Plans, etc., may be seen, and information given, on application to Messrs. J. Stevenson & Son, architects, 14, North-terrace, Berwick-on-Tweed.

JANUARY 10.—**Briton Ferry.**—PUBLIC HALL, ETC.—Public hall and institute at Briton Ferry. Names to the architect, Mr. H. Alex. Clarke, architect, Briton Ferry, accompanied by a deposit of 3*l*. 3s. for bills of quantities.

JANUARY 10.—**Dorchester.**—FLOOR.—Laying down of a maple floor, suitable for roller skating, at the Corn Exchange, Dorchester. Plans, etc., may be seen at the office of Mr. Percival T. Harrison, A.M.Inst.C.E., Borough Engineer, during office hours.

JANUARY 10.—**Nottingham.**—ALTERATIONS TO HALL.—The Public Parks Committee of the Nottingham Corporation invite tenders for alterations to the hall and cottages, and the erection of sanitary conveniences at Bulwell Hall Park. Plans may be seen, and copies of the specification, etc., obtained from Mr. Frank B. Lewis, City Architect, Guildhall, on payment of a deposit of 1*l*. 1s.

JANUARY 10. — **Nottingham.** — URINAL AND STORE SHED.—The Public Parks Committee of the Nottingham Corporation invite tenders for the erection of a urinal and a store shed on the Nottingham Forest. Plans may be seen, and copies of the specification, etc., obtained from Mr. Frank B. Lewis, City Architect, Guildhall, on payment of a deposit of 1*l*. 1s.

JANUARY 10. — **Slaithwaite.**—DWELLING-HOUSES.—Erection of two dwelling-houses, in Meal Hill-lane, Slaithwaite. Plans may be seen, and quantities obtained, at office of Mr. Arthur Shaw, architect, Golcar.

JANUARY 10. — **Stockport.** — FLOOR. — The Baths Committee invite tenders for the labour and materials required in erecting a wooden floor over a plunge bath at the St. Petersgate Baths. Plans, etc., may be seen, and specifications, etc., obtained, on application to Mr. John Atkinson, A.M.Inst.C.E., Borough Surveyor, Town Hall, Stockport.

JANUARY 11. — **London.**—ROOFING.—The Directors of Great Western Railway Company invite tenders for corrugated-iron roofing work at Paddington Goods Station. Plans, etc., may be seen, and forms of tender, etc., obtained, at the office of the Engineer at Paddington Station, London.

JANUARY 11. — **Pontypool.** — POLICE-STATION.—The Standing Joint Committee invite tenders for pulling down the existing buildings and the erection on the present site of a new headquarters station. Plans, etc., may be seen at the office of Mr. William Tanner, F.S.I., County Surveyor, and a copy of the quantities obtained, on payment of 1*l*. 1s.

JANUARY 12. — **Aberavon.** — SCHOOL.—Glamorgan C.C. invite tenders for new mixed department at the Council School at Sandfields, Aberavon. Plans, etc., may be seen, and bills of quantities, etc., obtained, at the Port Talbot Police-station, and at offices of Mr. T. Mansel Franklen, Clerk to the C.C., Glamorgan C.C. Offices, Westgate-street, Cardiff.

JANUARY 12. — **Halifax.** — ENLARGEMENT OF POST-OFFICE.—The Commissioners of H.M. Works and Public Buildings invite tenders for the enlargement of the Halifax Post-office. Drawings, etc., may be seen on application to the Postmaster, Head Post-office, Halifax. Bills of quantities and forms of tender may be obtained on payment of 1*l*. 1s.

JANUARY 12.—**Llest.**—SCHOOL.—Glamorgan C.C. invite tenders for new Council school for infants at Llest, Pontyrhyl. Plans, etc., may be seen, and bills of quantities, etc., obtained, at the Pontycymmer Police-station, and at offices of Mr. T. Mansel Franklen, Clerk of the C.C., Glamorgan C.C. Offices, Westgate-street, Cardiff.

JANUARY 12.—**Milnsbridge.**—SHOPS, ETC.—Trades required in the erection of two shops and three houses, at the top of Morley-lane, Milnsbridge. Applications for quantities to Messrs. Ainley & Hirst, architects, surveyors, and valuers, Slaithwaite.

JANUARY 12.—**Pontypridd.**—OFFICES.—Glamorgan C.C. invite tenders for new offices at Pontypridd County School. Plan may be seen, and specification and form of tender obtained, at the Pontypridd Police-station, and at offices of Mr. T. Mansel Franklen, Clerk of the C.C., Glamorgan C.C. Offices, Westgate-street, Cardiff.

JANUARY 13. — **Gosport.** — CONVENIENCES.—Gosport and Alverstoke U.D.C. invite tenders for the erection and completion of new public conveniences, etc. Further particulars, etc., may be obtained on application at the Surveyor's Office.

JANUARY 13.—**Halifax.**—BUSINESS PREMISES.—Works required in the erection of business premises in Harrison-road, Halifax. Plans, etc., may be seen, and quantities obtained, on application to Mr. J. T. Dalton, Victoria-street East, Halifax

JANUARY 13. — **Manchester.** — ALTERATIONS.—The Markets Committee invite tenders for alterations to premises in High-street and Smithfield Market. Drawings, etc., may be seen, and bills of quantities obtained, on application at the City Architect's Office, Town Hall, upon payment of 1*l*. 1s.

JANUARY 13.—**West Bromwich.**—FLOORS, ETC.—Walsall and West Bromwich School District invite tenders for new floors, partitions, dual desks, and ventilating hoppers in windows, etc., at the Walsall and West Bromwich District Schools, Wigmore, West Bromwich. Plans, etc., may be seen at the office of Mr. J. W. Allen, architect, High-street, West Bromwich.

JANUARY 14. — **Bridesbridge.** — HOUSE.—Tenders are invited for building a dwelling-house at Bridesbridge, Castlelyons, Co. Cork, for Mr. Richard Morrison. Plans, etc., prepared by Mr. W. F. Maye, C.E., architect, Fermoy.

JANUARY 14.—**Fermoy.**—HOUSE.—Tenders are invited for building a dwelling-house at Bridesbridge, Castlelyons, Co. Cork, for Mr. Richard Morrison in accordance with plans, etc., prepared by Mr. W. F. Maye, C.E., architect, Fermoy.

JANUARY 14.—**Lochgelly.**—SCHOOL.—Mason, brick, joiner, plumber, etc., work of proposed school in High-street, known as Lochgelly South School, for the School Board of Lochgelly. Plans, etc., may be seen, and all further information obtained, on application to Messrs. A. Scobie & Son, architects, Dunfermline and Lochgelly, who will also furnish schedules of measurements on receipt of a deposit of 1*l*. 1s.

JANUARY 15. — **Ballymote.** — CHAPEL.—Side chapel and executing other extensive works at Ballymote Church for the Very Rev. Canon Conington, P.P., D.D., V.F. The plans, etc., can be seen at the Presbytery or at office of Messrs. William H. Byrne & Son, architects, 29, Suffolk-street, Dublin. Quantities by Messrs. Morris & Co., surveyors, 68, Harcourt-street, Dublin.

JANUARY 17. — **Enfield.** — PUMPING STATION. — The Metropolitan Water Board invite tenders for the construction of pumping station buildings, etc., at Hadley-road, Enfield. The drawings, etc., may be inspected at the offices of the Chief Engineer, Savoy-court, Strand, W.C. Forms of tender, etc., from the Chief Engineer on the production of an official receipt for the sum of 10*l*., which sum must be deposited with the Accountant at Savoy-court, Strand, W.C.

JANUARY 17.—**Flixton.**—SCHOOL.—Lancashire Education Committee invite tenders for the erection of an elementary school at Flixton, near Manchester, to accommodate 370 children. The plans may be seen, and bills of quantities obtained, at the office of the County Architect, Mr. Henry Littler, 15, Ribblesdale-place, Preston, by payment of a deposit of 2*l*.

JANUARY 17.—**Pontypridd.**—HOSPITAL.—Erection of a cottage hospital at Pontypridd for the Executive Committee. Plans, etc., can be seen at office of Messrs. A. O. Evans, Williams, & Evans, architects, Pontypridd, and bills of quantities obtained, on payment of a deposit of 2*l*. 2s.

JANUARY 17. — **Talkin.** — SCHOOL REPAIRS. — The Managers of Talkin School invite tenders for repairs to school and house. Plans, etc., to be seen at Mr. R. Routledge's, Talkin

* JANUARY 19. — **Hornchurch.** — ALTERATIONS TO SCHOOL.—The Guardians of St. Leonard, Shoreditch, invite tenders for structural alterations to the school at the cottage homes at Hornchurch. See advertisement in this issue for further particulars.

JANUARY 19. — **Nelson, Glam.**—COTTAGES.—Twelve cottages for the Llancaiach Building Club on Caerphilly-road, Nelson, Glam. Drawings, etc., can be seen with the Secretary, Mr. H. Osborne, Commercial-road, Nelson, and at office of Mr. Idris Leyshon, architect and surveyor, 7, Hanbury-road, Bargoed.

JANUARY 19. — **Oldham.**—ROOF.—The Baths Committee invite tenders for the reconstruction of roof over gentlemen's swimming bath at Central Baths. Particulars may be obtained at the Borough Surveyor's Office, Town Hall, Oldham.

JANUARY 20. — **Treherbert.** — CHAPEL EXTENSION.—Extension of Bethany English Baptist Chapel, Treherbert, Rhondda Valley, for the Trustees. Plans, etc., may be seen with Mr. W. R. Davies, 14, Bute-street, Treherbert, and at office of Mr. W. D. Morgan, M.S.A., architect, 194, Ystrad-road, Pentre.

JANUARY 21. — **Dorchester.** — REPAIRS, ETC.—The Standing Joint Committee of the County of Dorset invite tenders for carrying out certain repairs, alterations, additions, at Stratton Manor, High West-street, Dorchester, in order to adapt the premises as County Offices. Plans, etc., may be seen at the County Surveyor's Office, Shire Hall, Dorchester.

JANUARY 21. — **Oxenhope Horkinstone.**—SCHOOL WORKS. — The West Riding Education Committee invite whole or separate tenders for alterations and additions, Oxenhope Horkinstone Provided School. Plans may be seen, and specifications, etc., obtained, on application to the West Riding Architect, County Hall, Wakefield. A deposit of 1*l*. must be sent by separate letter to the West Riding Treasurer, County Hall, Wakefield.

JANUARY 21. — **Pentre.** — HOUSES. — Erection and completion of three houses at Pentre for Mr. J. E. Morris. Plans, etc., may be seen at office of Mr. W. D. Morgan, M.S.A., architect, 194, Ystrad-road, Pentre.

* JANUARY 21. — **Salop.**—SCHOOL.—The Salop C.C. (Education Department) invite tenders for new infants' Council school at Harts Hill, Wombridge, Oakengates, Salop. See advertisement in this issue for further particular.

JANUARY 22. — **Natland.** — PROPOSED RESIDENCE.—Tenders are invited, either in whole or separate trade contracts, for the erection of the above, for Mr. Ismay Barnes. Plans may be seen, and quantities, etc., obtained, at office of Mr. John F. Curwen, F.S.A., architect and sanitary engineer, 26, High-gate, Kendal.

BUILDING—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

JANUARY 24.—**Blackwood.**—SHOPS, ETC.—Two shops and premises at Blackwood, Mon., for Mr. J. F. Chappel. Plans, etc., can be seen, and form of tender obtained, at the office of Mr. D. J. Thomas, architect, High-street, Blackwood, Mon.

JANUARY 25. — **Belfast.** — ABATTOIR.—The Market Committee invite tenders for the erection of abattoir in Stewart-street, Belfast. General conditions, specification, etc., can be seen at the office of the City Surveyor, City Hall, Belfast, and bills of quantities obtained from Messrs. W. H. Stephens & Sons, surveyors, 13, Donegall-square North, on deposit of 5*l.* 5s., to be lodged with the City Chamberlain, City Hall.

✱ JANUARY 25. — **Poplar.**—CORONER'S COURT.—The London C.C. invite tenders for erection of a Coroner's Court. See advertisement in this issue for further particulars.

JANUARY 25.—**Shanaglish.**—CHANCEL, ETC.—Building of a chancel and sacristy and the removing of an old, and the putting on of a new, roof, etc., at the Parish Church, Shanaglish, Gort. Plans, etc., may be seen at the Parochial House, Shanaglish, Gort, or at the offices of the architects, Messrs. A. G. Scott & Son, O'Connell-street, Dublin.

JANUARY 26.—**Eyries.**—PRESBYTERY.—Erection of a presbytery at Eyries, Co. Cork, according to drawings, etc., prepared by Mr. D. O'Connell, architect, Darrynane Abbey, Waterville, which can be seen at the Presbytery, Eyries, or at the office of the architect.

JANUARY 26.—**Halifax.**—REINSTATING.—Reinstating of Kingston Confectionery Works, belonging to Messrs. John Mackintosh, Ltd. Plans, etc., may be seen, and bills of quantities obtained, at offices of Messrs. Medley Hall & Sons, architects and surveyors, 1, Harrison-road, Halifax.

JANUARY 27.—**Margate.**—NEW SHOWROOM, ALTERATION, ETC.—The Directors of the Isle of Thanet Gas Light and Coke Company invite tenders for a new showroom and other buildings, together with certain alterations at the Gasworks, Addington-street, Margate, in accordance with drawing, etc., prepared by the Company's Engineer, Mr. J. M. Campbell, which may be seen, and further particulars obtained, with form of tender, on application at the offices.

JANUARY 29. — **Treherbert.** — PREMISES. — New premises at Treherbert for the Conservative Club. Plans, etc., can be seen at the offices of Mr. J. Rees, architect, Pentre, and bills of quantities upon a deposit of 2*l.* 2s.

NO DATE.—**Ardmore.**—BUNGALOW.—Bungalow residence at Ardmore, County Waterford. Plans, etc., prepared by Messrs. W. H. Hill & Son, architects, 28, South Mall, Cork.

NO DATE. — **Ballyhooly.**—RESIDENCE.—Building a teacher's residence in Ballyhooly. Plan, etc., may be had on application to Rev. Canon Higgins, P.P., Castletownroche.

NO DATE. — **Devonport.**—ALTERATIONS.—Estimate wanted for alterations to workrooms; about 100*l.* job. Mr. Goldman, Marlborough-street, Devonport.

ENGINEERING, IRON, AND STEEL

JANUARY 11.—**London.**—BRIDGE.—The London C.C. invite tenders for the partial reconstruction of the bridge carrying Mitcham-lane over the London, Brighton, and South Coast Railway. Specifications, etc., on application to the Chief Engineer of the Council, Mr. Maurice Fitzmaurice, C.M.G., at the County Hall, Spring-gardens, S.W., upon payment to the Cashier of the Council of the sum of 3*l.*

JANUARY 11.—**Skipton.**—BRIDGE WORKS.—Skipton U.D.C. invite tenders for the masonry work required in the reconstruction of Pinder Bridge, at Skipton. Drawings, etc., may be seen, and other information obtained, at the Surveyor's Office, Town Hall, Skipton, on deposit of 1*l.*

JANUARY 12.—**North Dublin.**—ELECTRIC LIGHTING. —The North Dublin Board of Guardians invite tenders for the wiring and fittings for electric lighting of the nursing sisters' residence, situate in North Brunswick-street, and 4, North City Dispensaries. Specifications may be inspected at the office of the Guardians, North Brunswick-street. Forms, etc., may be obtained from the consulting engineer, Mr. Louis J. Lawless, A.Inst.E.E., 27, Castlewood-avenue, Rathmines, on payment of cost of production (10s.).

JANUARY 17. — **Eastbourne.** — SURFACE CONDENSING PLANT.—For one steam-driven surface condensing plant, for the Corporation. Specification, etc., may be obtained on application to Mr. J. K. Brydges, Borough Electrical Engineer, Electricity Works, Eastbourne, on payment of 1*l.* 1s.

✱ JANUARY 17.—**South Farnborough.**—HEATING APPARATUS.—The Southampton C.C. invite tenders for low-pressure hot-water apparatus at South Farnborough Council School. See advertisement in this issue for further particulars.

FEBRUARY 7.—**Launceston, Tasmania.**—STEEL TRAM RAILS AND FASTENINGS.—Supply and delivery of about 1,100 tons of steel tram rails and fastenings. Copies of conditions of tendering, etc., may be obtained upon application to Mr. C. W. Rocher, Town Clerk, Town Hall, Launceston, or Messrs. John Terry & Co., 7, Great Winchester-street, London, E.C., on payment of 1*l.* 1s.

MISCELLANEOUS.

JANUARY 10. — **Willesborough.** — FENCING.—East Ashford R.D.C. invite tenders for erecting certain fencing at Church-lane, Willesborough. Specification can be seen by appointment at the office of Mr. Pullen, Surveyor, Kennington.

JANUARY 11. — **Hambledon.** — SCAVENGING.—The Hambledon R.D.C. invite tenders for the collection and removal of dust, ashes, house refuse, and the contents of earth closets, etc., in the Parish of Shalford. Forms of tender, etc., can be obtained on application at office of Mr. Ferdinand Smallpeice, Clerk to the Council, 138, High-street, Guildford, or of Mr. E. G. Randall, the Clerk of the P.C. of Shalford.

JANUARY 12. — **Keighley.** — WALL-CASES.—Tenders are required for providing wall-cases at the Museum, Victoria Park. Further particulars from the Borough Engineer's Office, Keighley.

JANUARY 12. — **Leeds.**—DEMOLITION.—Development Committee of the Corporation of Leeds invite tenders for the purchase and demolition of the structures of buildings between Sykes-place and Lady Beck. The plan, etc., may be seen, and forms of tender, etc., may be obtained at office of Mr. W. T. Lancashire, City Engineer, City Engineer's Office, Municipal Buildings.

JANUARY 14.—**Stafford.**—DANGER SIGNALS.—Staffordshire C.C. Main Roads and Bridges Committee invite tenders for the supply of about 1,000 motor danger signals. Further particulars, etc., may be obtained from Mr. James Moncur, A.M.Inst.C.E., Chief Surveyor of Main Roads, County Buildings, Stafford.

JANUARY 17. — **Halifax.** — TURFING.—The Parks Committee invite tenders for turfing bowling green at Akroyd Park. Plans, etc., may be seen, and forms of tender obtained, on application to Mr. James Lord, M.Inst.C.E., Borough Engineer, Town Hall, Halifax, upon payment of the sum of 1*l.*

JANUARY 19. — **Maidstone.** — MOTOR-CARS.—Kent C.C. Bridges and Roads Committee invite tenders for the supply of two each 4-ton heavy motor-cars, fitted with internal combustion engines for petrol consumption. General specification, etc., can be obtained upon application to the County Surveyor, Maidstone.

JANUARY 19.—**Orsett.**—SCAVENGING.—Orsett R.D.C. invite tenders for the work of collecting house refuse and emptying cesspools and closets in the Parish of Aveley. Further particulars can be obtained of Mr. John Hurst, of 100, New-road, Grays.

NO DATE.—**Horden.**—BURIAL GROUND.—Works required in laying out and enclosing a proposed new burial ground at Horden Colliery. Plans, etc., may be seen at the Horden Colliery Office on application to Mr. James Hamilton at that place.

NO DATE. — **Workington.** — DRILL GROUND. — Cumberland C.C. invite tendering for the whole of the works required in the preparation of the site adjoining Workington Police-station for use as a drill ground for the police. Names to Mr. Geo. Dale Oliver, County Architect, Carlisle.

PAINTING, etc.

JANUARY 17. — **Abertridwr.**—PAINTING.—Painting ninety-five cottages at Abertridwr for the Windsor Building Club, Porth. Full particulars may be obtained on application to Mr. W. D. Thomas, architect, Tydfil-crescent, Porth.

JANUARY 19. — **Eltham.** — PAINTING, ETC. — The Council of the Metropolitan Borough of Woolwich invite tenders for painting and repairs at the Public Library, High-street, Eltham. Specification, etc., at the office of Mr. J. Rush Dixon, M.Inst.C.E., Borough Engineer, Town Hall, Woolwich.

FEBRUARY 1. — **Manchester.**—PAINTING.—Lancashire and Yorkshire Railway Directors invite tenders for painting at various places. Specifications, etc., may be obtained on personal application at the Engineer's Office, Hunt's Bank, Manchester.

ROADS, SANITARY, AND WATER WORKS.

JANUARY 10.—**Leeds.**—PAVING, ETC.—The Highways Committee invite tenders for the paving and flagging of Strathmore-drive and Strathmore-terrace, and for the flagging and tar macadamising of Vinery-avenue; also for the paving and flagging of the improvements in York-road and Lower Town-street, Bramley. Drawings may be seen at the City Engineer's office, Municipal Buildings. Forms of tender, etc., may be obtained on application at the Highways Office, 155, Kirkstall-road, Leeds.

JANUARY 10.—**South Brent.**—ROAD WORKS.—Repairing the road from Shipley Bridge to Brent Moor House. For further particulars apply to Mr. J. H. Stanbury (agent to Mr. E. Meynell), Kimberley, South Brent.

JANUARY 11. — **Abercynon.** — STREET WORKS.— Mountain Ash U.D.C. invite tenders for the execution of private street works in Martin's-lane, Abercynon. Plans, etc., may be seen, and forms, etc., obtained, on application to Mr. W. G. Thomas, Surveyor, Town Hall, Mountain Ash.

JANUARY 11. — **Crewe.**—STREET-MAKING.—The Crewe T.C. invite tenders for the making of Nixon, Hulme, and Chesterfield streets. Plans, etc., may be seen, and all other necessary information obtained, upon application to Mr. G. Eaton-Shore, Borough Surveyor, Earle-street, Crewe. A deposit of 1*l.* will be required.

JANUARY 11. — **Pannal, Knaresborough.** — SEWER.—The R.D.C. invite tenders for the construction of 1,425 yds. of 9-in. main sewer at Church-lane, Pannal. Mr. James Smith, Clerk to the Council, Poor Law Offices, Knaresborough.

JANUARY 12.—**Earsdon.**—STREET WORKS.—Earsdon U.D.C. invite tenders for the making good of the opening between Duke-street, Percy-street, and Emmerson-place, Shiremoor. Plans, etc., may be seen on personal application to the Surveyor, Mr. J. R. MacMillen Council Offices, Shiremoor.

JANUARY 12. — **Stanley.** — CULVERT. — The West Riding Highways Committee invite tenders for the construction of a brick and concrete culvert, in the Wakefield and Aberford main road, at the Grove, within the Stanley Urban District. Plans may be seen, and specification, etc., obtained, at the office of Mr. F. G. Carpenter, West Riding Surveyor, County Hall, Wakefield.

JANUARY 12.—**Weston, Runcorn.**—SEWERS.—The R.D.C. of Runcorn invite tenders for the construction of about 1,000 yds. of 9-in. sewers, etc., in Sandy-lane, Weston Point. Drawings, etc., may be seen, and form of tender obtained, at the offices of Mr. Frank J. Jones, architect and surveyor, Bank-chambers, High-street, Runcorn.

JANUARY 13. — **Hampstead.**—WOOD PAVING.—The B.C. invite tenders for providing and laying creosoted deal blocks in a portion of West End-lane, area about 3,007 sq. yds. Specification can be seen on application to Mr. O. E. Winter, A.M.Inst.C.E., at the Town Hall, where form of tender, etc., can be obtained.

JANUARY 14. — **Bingley.** — LAYING-OUT.—The West Riding Education Committee invite tenders for laying-out playing fields (excavator), Bingley Training College. Plans may be seen, and specifications, etc., obtained, on application to the West Riding Architect, County Hall, Wakefield. A sum of 1*l.* must be sent by separate letter to the West Riding Treasurer, County Hall, Wakefield.

✱ JANUARY 17. — **Chester.** — MAIN DRAIN. — The Visitors of the Chester County Asylums invite tenders for construction of a main drain from the Asylum to the Liverpool-road. See advertisement in this issue for further particulars.

JANUARY 17. — **Horley.**—STREET WORKS.—Reigate R.D.C. invite tenders for private street works to be executed in Chestnut-road, Horley. Plan, etc., can be seen at the office of the Surveyor, Mr. Arthur J. Head, 48, High-street, Reigate.

JANUARY 17. — **Southfield, Wandsworth.**—ROAD REPAIR.—The Council of the Metropolitan Borough of Wandsworth invite tenders for executing necessary works of repair upon the carriage road called Inner Park-road, Southfield. The specification, etc., may be seen, and forms of tender obtained, at the Borough Engineer's Office, New Streets' Department, 56, East-hill, Wandsworth, S.W.

✱ JANUARY 17. — **Wandsworth.**—ROAD REPAIRS.— The Wandsworth B.C. invite tenders for repairs upon Inner Park-road, Southfield. See advertisement in this issue for further particulars.

JANUARY 18.—**Hunslet.**—SEWERAGE WORKS.—Hunslet R.D.C. invite tenders for the construction of about 250 yds. of 9-in. pipe sewer and manholes in Woodlesford, near Leeds. Plans, etc., may be seen, and forms of tender obtained, at office of Mr. W. B. Pindar, Clerk to the Council, Council Offices, Leek-street, Hunslet, Leeds.

JANUARY 20-25 — **Laxey.**—WATER SUPPLY, CONTRACTS 3 AND 4.—The Commissioners of the Village of Laxey invite tenders for the construction of intakes, filters, and reservoirs near Laxey; also for the laying of about 10,000 lin. yds. of 4-in. and 3-in. cast-iron mains and branches. Specifications, etc., may be obtained from the Engineer, Mr. R. H. Crompton, A.M.Inst.C.E., Brantfell House, Bowness-on-Windermere, on payment of 2*l.* 2s. for each contract. Plans, etc., can be seen at the Commissioners' Office, Laxey, or on application to the Engineer at 26, Ellerthwaite-road, Windermere, and at 11, Lowther-street, Whitehaven, up to the week ending January 20.

JANUARY 27.—**Chatham.**—WOOD PAVING, ETC.—The T.C. of the Borough of Chatham invite tenders for (1) laying about 6,300 super. yds. wood paving at High-street; (2) construction and supply of a tank van for sewage. Drawings may be seen, and specifications, etc., obtained, on application at the Borough Surveyor's Office, Town Hall, Chatham, on payment of 1*l.* 1s.

✱ JANUARY 27. — **Wandsworth.** — ROADS. — The Guardians of Wandsworth invite tenders for making roads and paths and laying-out grounds. See advertisement in this issue for further particulars.

JANUARY 31.—**Yeovil.**—SEWERAGE WORKS.—The Corporation invite tenders for the construction of certain sewers, drains, and other works. Drawings may be inspected, and specifications, etc., can be obtained, on payment of the sum of 2*l.* 2s., on application at the office of the Borough Surveyor at Yeovil, or at the office of Messrs. T. & C. Hawksley, civil engineers, Caxton House, Westminster, S.W.

FEBRUARY 15. — **Toronto.** — SEWAGE TANKS, ETC. — Sealed tenders, endorsed "Tender for Sewage Tanks," or "Tender for Valves," etc., as the case may be, will be received by registered post only, addressed to the Chairman of the Board of Control, City Hall, Toronto, Canada, until noon on February 15, for the work and materials. Plans may be seen, and specifications obtained, at the office of the City Engineer, Toronto, and at the office of the Commercial Intelligence Branch of His Majesty's Board of Trade, 73, Basinghall-street, London, E.C., England.

NO DATE.—**Darlington.**—LAND DRAINING.—Prices wanted for 3,000 yds., 30 in. deep. Messrs. Blackett & Son, Darlington.

NO DATE. — **Hooton.** — DRAINAGE.—Execution of drainage scheme at Willaston Estate, near Hooton. Plans may be inspected, and schedules of quantities obtained, on deposit of 1*l.* 1s., from Mr. J. Barlow Davies, Surveyor, 16, Fenwick-street, Liverpool.

STONES, MATERIAL, AND STORES.

JANUARY 10.—**Chesterfield.**—CHALK, ETC.—Chesterfield R.D.C. invite separate tenders for the supply of 200 tons of chalk and for 150 tons of sand. Particulars may be obtained from the Council's Waterworks Engineer, Mr. Gilbert Frith, Union Offices, Chesterfield.

JANUARY 10. — **Chesterfield.** — FILTER SAND.— Chesterfield R.D.C. invite tenders for 150 tons of sand. Particulars may be obtained from the Waterworks Engineer of the Council, Mr. Gilbert Frith, Union Offices, Chesterfield.

JANUARY 10. — **Glanford and Brigg.** — GRANITE AND SLAG.—The R.D.C. of Glanford Brigg invite tenders for the supply of granite and slag. Specifications, etc., may be had on application to Mr. Frank C. Hett, Clerk, 11, Bigby-street, Brigg.

JANUARY 11. — **Bridgwater.**—STONE.—The R.D.C. invite tenders for the supply of stone. Printed forms of tender will be supplied on application to Mr. T. M. Reed, Solicitor, Bridgwater, and Clerk to the above Council, R.D.C. Offices.

JANUARY 11.—**Crewe.**—STREET-MAKING.—Crewe T.C. invite tenders for the making of Nixon, Hulme, and Chesterfield-streets. Specifications, etc., may be seen, and all other necessary information obtained, upon application to Mr. G. Eaton-Shore, Borough Surveyor, Earle-street, Crewe. A deposit of 1*l.* will be required.

STORES, etc.—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

JANUARY 11.—**London.**—GOODS.—Bombay, Baroda, and Central India Railway Directors invite tenders for the supply of (1) metals; (2) wrought-iron and mild steel bolts, nuts, rivets, etc.; (3) wood screws, pins, etc. Forms, etc., can be obtained at offices of Mr. C. Crommelin, Secretary, Gloucester House, 2, 3, and 4, Bishopsgate-street Without, London, E.C., on payment of 1*l.* 1s. each (which will not be returned).

JANUARY 12.—**Ashington.**—MATERIALS.—Ashington U.D.C. invite tenders for the supply of articles for the ensuing six calendar months. Forms of tender will be supplied on application to the Surveyor at the Council Offices, Ashington.

JANUARY 12. — **Manchester.** — PAINTS. — The Cleansing Committee of the Manchester Corporation invite tenders for a twelve months' supply of paints. Specifications may be obtained from Mr. R. Williamson, Superintendent of the Cleansing Department, Town Hall, Manchester.

JANUARY 13.—**Lancaster.**—GOODS.—The Lancaster Corporation invite tenders for the supply of fireclay pipes, etc., grit setts, Portland cement, road materials, etc. Forms of tender, etc., may be obtained on application at the office of Mr. John C. Mount, Borough Surveyor, Lancaster.

JANUARY 15.—**Llwynypia.**—SUPPLIES.—Cambrian Collieries, Ltd., Clydach Vale; Glamorgan Coal Company, Ltd., Llwynypia; Naval Colliery Company, Ltd., Penygraig, invite tenders for the supply for twelve months. All information may be obtained at the General Offices, Llwynypia.

JANUARY 17-22. — **Birmingham.** — STORES.—The Public Works Committee invite tenders for the supply of stores for one year. Samples and patterns may be seen on application to the Storekeeper at the Lamp Department, Park-street, and the Corporation Wharf, Sheepcote-street. Forms of tender, etc., may be obtained at the City Surveyor's Office, Council House, Birmingham, on payment of 1*l.* for each copy.

JANUARY 17.—**Ely.**—WATER PIPES.—The Ely U.D.C. invite tenders for the supply and delivery of 12-in. cast-iron water pipes. Copy of specification, etc., may be obtained from the City Surveyor, Waterside, Ely, on receipt of postal order for 1*l.* 1s.

* JANUARY 20.—**Lambeth.**—WORKS AND MATERIALS.—The Lambeth B.C. invite tenders for various services and materials for one year from March 31 next. See advertisement in this issue for further particulars.

JANUARY 20.—**Plymouth.**—STORES, ETC.—Plymouth Corporation invite tenders for the supply of goods and materials for a period of one year. Particulars, etc., can be obtained at office of Mr. Frank Howarth, M.Inst.C.E., Water Engineer, Municipal Buildings, Plymouth.

JANUARY 21. — **Spilsby.** — GRANITE, ETC.—Spilsby R.D.C. invite tenders for the supply of about 5,000 tons of broken granite, 9,000 tons of broken slag, and 400 tons of slag chippings. Specifications, etc., may be obtained on application to Mr. Wm. Cooke Brakenridge, District Surveyor of Highways, Spilsby.

JANUARY 22. — **Birmingham.** — MATERIALS.—The Public Works Committee invite tenders for the supply of materials for one year. Forms of tender, etc., may be obtained at the City Surveyor's Office, Council House, Birmingham, on payment of 1*l.* for each copy.

* JANUARY 22.—**Chelmsford.**—GRANITE KERB AND SETTS.—The Essex C.C. invite tenders for supply of Norway granite kerb and setts. See advertisement in this issue for further particulars.

JANUARY 22. — **Norwich.** — Tenders for gravel, flints, and chalk, team labour, and supply of tools, wheelbarrows, and handcarts.—Specification, etc., may be obtained from office of Mr. T. H. B. Heslop, M.Inst.C.E., County Surveyor, The Shirehouse, Norwich, upon receipt of a stamped addressed large foolscap envelope.

JANUARY 22.—**Plymouth.**—GOODS AND MATERIALS.—Contracts for the supply of goods and materials for one year (bricks, pipes, etc.). Schedules may be obtained on payment of a deposit of 1*l.* in cash for each schedule. Mr. James Paton, Borough Engineer and Surveyor, Municipal Offices, Plymouth.

JANUARY 24.—**Camberwell.**—ANNUAL CONTRACTS.—The B.C. invite tenders for work, or for the supply of stores, materials, etc. Forms of tender may be obtained on application to the Borough Engineer's Office, Town Hall, Camberwell, S.E., by specifying sections desired.

JANUARY 24. — **London.** — STORES. — The Agent-General for the Cape of Good Hope invites tenders for the supply of the following stores, viz.:—(1) 5,000 tons rails, 80 lb. section, Bessemer or open-hearth steel; (2) 28,000 fish-plates, Bessemer or open-hearth steel, for 80 lb. section rails. Forms of tender and all particulars may be obtained on application at the office of the Agent-General, 100, Victoria-street, London.

JANUARY 24.—**London.**—STORES.—The Metropolitan Water Board invite tenders for the supply of stores and the execution of works. The official forms may be obtained from the Clerk, Savoy-court, Strand, W.C., by personal application or on receipt of a stamped addressed envelope.

* JANUARY 24.—**London.**—WORKS AND MATERIALS.—The Metropolitan Water Board invite tenders for supply of stores and execution of works, etc., for twelve months ending March 31, 1911. See advertisement in this issue for further particulars.

* JANUARY 24.—**Poplar.**—WORKS AND MATERIALS.—The Poplar B.C. invite tenders for execution of works and supply of various materials. See advertisement in this issue for further particulars.

JANUARY 25. — **Walton-on-Thames,** etc.—MATERIALS, ETC.—Tenders are invited for the supply of granites, basalts, and tar macadam. Tenders are also invited for hauling from stations or wharves and also for day work upon the several main roads. Specifications, etc., may be obtained on application to the County Surveyor, County Hall, Kingston-on-Thames.

* JANUARY 26.—**Chelsea.**—WORKS AND MATERIALS.—The Chelsea B.C. invite tenders for supply and execution of various articles and works from April 1 next. See advertisement in this issue for further particulars.

JANUARY 29.—**Derby.**—MATERIALS.—Derbyshire C.C. invite tenders for the supply of broken granite, basalt, limestone, slag, or other suitable materials. Form of tender, etc., may be obtained at office of Mr. J. W. Horton, A.M.Inst.C.E., County Surveyor, County Offices, St. Mary's-gate, Derby.

JANUARY 31. — **Bermondsey.** — CONTRACTS.—The B.C. invite tenders for the supply of articles for one year. Forms of tender and other particulars can be obtained on application to Mr. Fredk. Ryall, Town Clerk, Town Hall, Spa-road, S.E.

FEBRUARY 1. — **Birmingham.** — STORES.—The Tramways Committee invite tenders for the supply of stores. Conditions of contract, etc., may be obtained on application to Mr. Alfred Baker, General Manager.

FEBRUARY 1.—**London.**—TOOLS, ETC.—The London C.C. invite tenders for the supply and delivery of tools and materials for woodwork, metal work, etc. Full particulars, etc., may be obtained on application to the Clerk of the Council, County Hall, Spring-gardens, S.W.

FEBRUARY 2.—**Hatfield.**—GRANITE, ETC.—Hertfordshire C.C. invite tenders for granite and slag. Forms of tender, etc., may be obtained on application at office of Mr. Urban A. Smith, M.Inst.C.E., County Surveyor, County Surveyor's Office, Hatfield.

NO DATE.—**Bangkok.**—PIPES.—Forms of specification, tender, and contract for the supply of 5,445 tons of cast-iron water pipes and accessories may be obtained from the Siamese Financial Agency, 23, Ashburn-place, London, S.W., price 5s. per set.

Public Appointment.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*CLERK OF WORKS	Egham U.D.C.	Not stated	Jan. 15

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*FRUIT TREES AND NURSERY STOCK, BUSH HILL PARK.—On the Premises	Protheroe & Morris	Jan. 12
*FREEHOLD LAND, ETC., WEST DRAYTON, ETC.—De Burgh Arms, West Drayton	Buckland & Sons	Jan. 27

Patents.

APPLICATIONS PUBLISHED.*

23,472 of 1908.—Gustav Polak: Mechanically-actuated chisel for dressing or ornamenting surfaces and for like purposes.

26,255 of 1908.—James Rees and James William Rees: Top double-action door check and spring closing apparatus.

26,320 of 1908.—John McNay: Bar, holdfast, or the like for concrete reinforcing and bonding purposes.

26,384 of 1908.—Henry Langdon Down: Process of and apparatus for mixing substances.

26,559 of 1908.—Edgar Alan Custer: Art of casting metal structures.

26,701 of 1908.—Morris Weil Brinkmann: Mechanical tool sharpeners.

27,260 of 1908.—Sherard Osborn Cowper-Coles: Machine for use in welding aluminium.

27,397 of 1908.—Edwin Pass and Ernest Peart: Branch service-pipes or main-supply pipes.

27,579 of 1908.—Cyrus Bullock: Plate and like gauges.

1,287 of 1909.—Thomas Baird: Buildings and transferable floors therefor.

3,491 of 1909.—William Avery: Machine for automatically cutting or forming screw-threads upon screws.

4,412 of 1909.—Robert Carnegie, Arthur Beevers, and Alfred Crowcroft: Draught excluders for doors and the like.

5,622 of 1909.—Howarth Ayre: Step ladders.

5,642 of 1909.—William Phillips: Windows.

6,735 of 1909.—William George Wakeham: Rollers for feeding wood planks, deals, and the like for subsequent treatment.

7,561 of 1909.—John Jones & Sons, Ltd., and George Phillips Jones: Adjustable dies for use in presses for the compression of clay or other plastic material into blocks, bricks, tiles, and the like.

7,698 of 1909.—Hattersley Brothers, Ltd., and Thomas Frederick Hattersley: Open fireplaces or register stoves.

9,363 of 1909.—Wilfred Rothey Wood: Apparatus for feeding fuel to furnaces.

11,637 of 1909.—Pierre Jules Tabourin: Manufacture of flagstones, tiles, and similar articles of cement or other similar analogous materials.

11,074 of 1909.—James Damrel Prior: Domestic firegrates.

16,248 of 1909.—James Hunter Lamont and Andrew Ritchie Smellie: Pipe couplings and joints.

16,337 of 1909.—Carl Engelking and Friedrichs & Engelking G.m.b.H.: Device for preventing the skidding of ladders.

17,768 of 1909.—Otto Greither: Wood-splitting appliance, with a cleaver linked to a vertical support.

22,667 of 1909.—Arthur Hubbard: Siphonic flushing-cisterns, and overflows for same.

22,809 of 1909.—William Dyce Cay: Metal skeletons of reinforced piles, sheet piles, columns, struts, ties, girders, and the like of cement concrete, cement, or similar material.

* All these applications are in the stage in which opposition to the grant of a patent upon them can be made.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the average prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

Per 1000 Along side, in River. £ s. d.
Best Stocks 1 8 0

Per 1000, Delivered at Railway Depot.

	£ s. d.		£ s. d.
Picked Stocks for Facings ...	2 10 0	D'ble Stretchers	16 7 6
Flectons	1 6 0	Double Headers	13 7 6
Best Fareham Red	3 12 0	One Side and two Ends	17 7 6
Best Red Pressed Bushon Facing	5 0 0	Two Sides and one End.....	18 7 6
Best Blue Pressed Staffordshire ..	3 15 0	Splays & Squints	15 17 6
Do. Bullnose.....	4 0 0	Best Dipped Salt Glzd. Sta'tch'rs	10 17 6
Best Stourbridge Fire Bricks ...	3 14 0	Headers	10 7 6
GLAZED BRICKS.		Quoins, Bullnose, and Flats	14 7 6
Best White and Ivory Glazed Stretchers	10 17 6	D ble Stretchers	16 7 6
Headers	10 7 6	Double Headers	13 7 6
Quoins, Bullnose, and Flats	14 7 6	One Side and two Ends	17 7 6
		Two Sides and one End.....	18 7 6
		Splays & Squints	15 17 6

Second Quality White and Dipped Salt Glaze, £1 per 1000 less than best.

	s. d.	
Thames and Pit Sand.....	6	per yard delivered.
Thames Ballast...	5 0	,, ,,
Best Portland Cement.....	28 0	per ton, ,,
Best Ground Blue Lias Lime	19 0	,, ,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 11s. 6d. per yard, delivered
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt.

STONE.

Per Ft. Cube. s. d.

BATH STONE—delivered on road waggons, Paddington Depôt ... 1 6½
Do. do. delivered on road waggons, Nine Elms Depôt ... 1 8½

PORTLAND STONE (20 ft. average)—
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf ... 2 1
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf ... 2 2½

Per Ft. Cube, Delivered at Railway Depôt.

	s. d.		s. d.
Ancaster in blocks	1 10	Red Corsehill in blocks	3 2
Beer in blocks	1 6	Closeburn Red Freestone	2 0
Greenshill in blocks	1 10	Red Mansfield Freestone	2 4
Darley Dale in blocks	2 4		

YORK STONE—*Robin Hood Quality.* s. d.
Scappled random blocks ... 2 10

Per Ft. Super., Delivered at Railway Depôt.
6 in. sawn two sides landings to sizes (under 40 ft. super.) ... 2 3
6 in. rubbed two sides ditto, ditto ... 2 6
3 in. sawn two sides slabs (random sizes) ... 0 11½
3 in. to 3½ in. sawn one side slabs (random sizes) ... 0 7½
1½ in. to 2 in. ditto, ditto ... 0 6

Per Ft. Cube, Delivered at Railway Depôt.
Scappled random blocks ... 3 0

Per Ft. Super., Delivered at Railway Depôt.
6 in. sawn two sides landings to sizes (under 40 ft. super.) ... 2 8
6 in. rubbed two sides ditto ... 3 0
3 in. sawn two sides slabs (random sizes) ... 1 2
2 in. self-faced random flags ... 0 5

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£ s. d.	In. In.	£ s. d.
20×10 best blue Bangor	13 2 6	20×10 best Eureka unfading green	15 17 6
20×12 ditto	13 17 6	20×12 ditto	18 7 6
20×10 1st quality ditto	13 0 0	18×10 ditto	13 5 0
20×12 ditto	13 15 0	16×8 ditto	10 5 0
16×8 ditto	7 5 0	20×10 permanent green	11 12 6
22×10 best blue Portmadoc	12 12 6	18×10 ditto	9 13 6
16×8 ditto	6 12 6	14×8 ditto	6 12 6

TILES.

At Railway Depot.

	s. d.		s. d.
Best plain red roofing (per 1000)	42 0	Best "Rosemary" brand plain (per 1000)	48 0
Hip and Valley (per doz.)	3 7	Best Ornamental (per 1000)	50 0
Best Broseley (per 1000)	50 0	Hip (per doz.)	4 0
Do. Ornamental (per 1000)	52 6	Valley (per doz.)	3 8
Hip and Valley (per doz.)	4 0	Best "Hartshill" brand, plain sand-faced (per 1000)	50 0
Best Ruabon red, brown, or brindled (Edwds) (per 1000)	57 6	Do. pressed (per 1000)	47 6
Do. Ornamental (per 1000)	60 0	Do. Ornamental (per 1000)	50 0
Hip (per doz.)	4 0	Hip (per doz.)	4 0
Valley (per doz.)	3 0	Valley (per doz.)	3 6
Best Red or Mottled Staffordshire do. (Peakes) (per 1000)	51 9	Staffords. (Hanley) Reds or Brindled (per 1000)	42 6
Do. Ornamental do. (per 1000)	54 6	Hand-made sand-faced (per 1000)	45 0
Hip (per doz.)	4 1	Hip (per doz.)	4 0
Valley (per doz.	3 8	Valley (per doz.)	3 6

WOOD.

BUILDING WOOD. At per standard.

	£ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	14 0 0	15 10 0
Deals: best 3 by 9	13 10 0	14 10 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11 10 0	12 10 0
Battens: best 2½ by 6 and 3 by 6	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less than best.
Battens: seconds	0 10 0	" "
2 in. by 4 in. and 2 in. by 6 in.	9 10 0	10 10 0
2 in. by 4½ in. and 2 in. by 5 in.	0 0 0	10 0 0
Foreign Sawn Boards—1 in. and 1¼ in. by 7 in.	0 10 0	more than battens.
¾ in.	1 0 0	"

Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft. 5 0 0	5 10 0
Seconds	4 10 0	5 0 0
Small timber (8 in. to 10 in.)	3 17 6	4 0 0
Small timber (6 in. to 8 in.)	3 5 0	3 10 0
Swedish balks	2 12 6	3 0 0
Pitch-pine timber (30 ft. average)	4 10 0	5 5 0

JOINERS' WOOD. At per standard.

White Sea: first yellow deals, 3 in. by 11 in.	24 10 0	25 10 0
3 in. by 9 in.	22 10 0	23 10 0
Battens, 2½ in. and 3 in. by 7 in.	17 0 0	18 0 0
Second yellow deals, 3 in. by 11 in.	19 0 0	20 0 0
" " 3 in. by 9 in.	18 0 0	19 10 0
Battens, 2½ in. and 3 in. by 7 in.	14 0 0	15 0 0
Third yellow deals, 3 in. by 11 in. and 9 in.	14 0 0	15 0 0
Battens, 2½ in. and 3 in. by 7 in.	11 10 0	12 10 0
Petersburg: first yellow deals, 3 in. by 11 in.	21 10 0	22 10 0
Do. 3 in. by 9 in.	18 10 0	19 10 0
Battens	14 0 0	15 0 0

WOOD (*continued*).

JOINERS' WOOD (*continued*)— At per standard.

	£ s. d.	£ s. d.
Second yellow deals, 3 in. by 11 in.	16 10 0	17 10 0
Do. 3 in. by 9 in.	15 0 0	16 0 0
Battens	11 10 0	12 10 0
Third yellow deals, 3 in. by 11 in.	13 10 0	14 10 0
Do. 3 in. by 9 in.	13 0 0	14 0 0
Battens	10 10 0	11 0 0
White Sea and Petersburg—		
First white deals, 3 in. by 11 in.	15 0 0	16 0 0
" " 3 in. by 9 in.	14 0 0	14 10 0
Battens	11 10 0	12 10 0
Second white deals, 3 in. by 11 in.	14 0 0	15 0 0
" " 3 in. by 9 in.	13 0 0	14 0 0
Battens	10 10 0	11 0 0
Pitch-pine: deals	19 0 0	21 0 0
Under 2 in. thick extra	0 10 0	1 0 0
Yellow pine—First, regular sizes	44 0 0	upwards.
Oddments	32 0 0	"
Seconds, regular sizes	33 0 0	"
Oddments	28 0 0	"
Kauri Pine—Planks, per ft. cube	0 3 6	0 5 0
Danzig and Stettin Oak Logs—Large, per ft. cube	0 3 0	0 3 9
Small " "	0 2 6	0 2 6
Wainscot Oak Logs, per ft. cube	0 5 6	0 6 0
Dry Wainscot Oak, per ft. sup. as inch	0 0 8½	0 0 9½
¾ in. do. do	0 0 7	—
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0 0 10	0 1 1
Selected, Figury, per ft. super. as inch	0 1 6	0 2 6
Dry Walnut, American, per ft. super. as inch	0 0 10	0 1 0
Teak, per load	18 0 0	22 0 0
American Whitewood Planks, per ft. cube	0 4 0	0 5 0

Prepared Flooring, etc.—	Per square.	
1 in. by 7 in. yellow, planed and shot	0 13 6	0 17 0
1 in. by 7 in. yellow, planed and matched	0 14 0	0 18 0
1¼ in. by 7 in. yellow, planed and matched	0 16 0	1 0 0
1 in. by 7 in. white, planed and shot	0 12 0	0 14 6
1 in. by 7 in. white, planed and matched	0 12 6	0 15 0
1¼ in. by 7 in. white, planed and matched	0 15 0	0 16 6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0 11 0	0 13 6
1 in. by 7 in. " "	0 14 0	0 18 0
¾ in. by 7 in. white " "	0 10 0	0 11 6
1 in. by 7 in. " "	0 12 9	0 15 0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	7 0 0	7 10 0
Compound Girders, ordinary sections	9 0 0	10 0 0
Steel Compound Stanchions	11 0 0	12 0 0
Angles, Tees, and Channels, ordinary sections	9 0 0	10 0 0
Flitch Plates	9 0 0	9 10 0
Cast Iron Columns and Stanchions including ordinary patterns	7 10 0	8 10 0

METALS.

	Per ton, in London. £ s. d.	£ s. d.
IRON—		
Common Bars	8 10 0	9 0 0
Staffordshire Crown Bars, good merchant quality	8 15 0	9 5 0
Staffordshire "Marked Bars"	10 10 0	—
Mild Steel Bars	8 15 0	9 5 0
Hoop Iron, basis price	9 5 0	9 10 0
" " Galvanised	17 0 0	—
("And upwards, according to size and gauge.)		
Sheet Iron Black—		
Ordinary sizes to 20 g.	9 15 0	—
" " 24 g.	10 15 0	—
" " 26 g.	12 5 0	—
Sheet Iron, Galvanised, flat, ordinary quality—Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15 0 0	—
Ordinary sizes to 22 g. and 24 g.	15 10 0	—
" " 26 g.	16 10 0	—
Sheet Iron, Galvanised, flat, best quality—		
Ordinary sizes to 20 g.	18 0 0	—
" " 22 g. and 24 g.	18 10 0	—
" " 26 g.	20 0 0	—
Galvanised Corrugated Sheets—		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	14 10 0	—
" " 22 g. and 24 g.	14 15 0	—
" " 26 g.	16 5 0	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 8 ft. to 20 g. and thicker	12 0 0	—
Best Soft Steel Sheets, 22 g. & 24 g.	13 0 0	—
" " " 26 g.	15 0 0	—
Cut Nails, 3 in. to 6 in.	10 10 0	11 0 0
(Under 3 in., usual trade extras.)		

LEAD, &c.

	Per ton, in London. £ s. d.	
LEAD—Sheet, English, 3lb. and up.	16 10 0	—
Pipe in coils	17 0 0	—
Soil pipe	20 0 0	—
Compo pipe	20 0 0	—
ZINC—Sheet—		
Vielle Montagne	28 10 0	—
Silesian	28 2 6	—
COPPER—		
Strong Sheet per lb.	0 1 0	—
Thin " "	0 1 1	—
Copper nails "	0 0 10	—
Copper wire "	0 0 10	—
BRASS—		
Strong Sheet "	0 0 11	—
Thin "	0 1 0	—
TIN—English Ingots "	0 1 4½	—
SOLDER—Plumbers' "	0 0 6½	—
Tinmen's "	0 0 9	—
Blowpipe "	0 0 11	—

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

Per Ft., Delivered.

15 oz. thirds	2½d.	26 oz. fourths	3d.
" fourths	1½d.	32 oz. thirds	4½d.
21 oz. thirds	3d.	" fourths	4½d.
" fourths	2½d.	Fluted Sheet, 15 oz.	3½d
26 oz. thirds	4d.	" 21 oz.	4½d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

Per Ft., Delivered.

¼ Hartley's	2½d.	Figured, Oxford Rolled, & "Oceanic"	
¼ "	2½d.	Glass, white	3½d.
¼ "	2½d.	Ditto, tinted	5d.

OILS, &c.

			£ s. d.
Raw Linseed Oil in pipes	per gallon		0 2 8
" " " in barrels	"		0 2 9
" " " in drums	"		0 3 0
Boiled " " in barrels	"		0 3 0
" " " in drums	"		0 3 3
Turpentine in barrels	"		0 3 3
" in drums	"		0 3 5
Genuine Ground English White Lead	per ton		20 10 0
Red Lead, Dry	"		19 10 0
Best Linseed Oil Putty	per cwt.		0 7 6
Stockholm Tar	per barrel		1 12 0

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 6
Fine Elastic Carriage	0 12 0
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 10 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flating Varnish	0 18 0
White Pale Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 9
French and Brush Polish	0 10 6

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursday.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

ACTON.—For repairing the footpath in Bollo-lane, for the Urban District Council:—
T. Adams, Wood Green* ... £113 3 4

ASHBY-DE-LA-ZOUCH.—For erecting new elementary school, etc., for the Education Committee of Leicestershire County Council. Mr. J. Day, Architect, 8, New-street, Leicester. Quantities by Mr. Ernest G. Fowler, Surveyor to the Committee:—

H. H. Garlick	£4,669 17 6	Bradshaw Bros.	£4,486 0 0
G. Hodges	4,648 0 0	J. Cole & Sons	4,404 19 0
W. Moss & Son	4,545 0 0	F. Sleath	4,385 0 0
Griffin Bros.	4,500 0 0	W. Stanger	4,384 0 0
E. Fox	4,497 0 0	T. Orton & Son	4,379 17 11
T. Barker & Sons	4,489 0 0	F. J. Bradford	4,324 0 0
W. Potter	4,488 15 0	J. Chapman	4,290 0 0

ASPLEY (Beds).—For additions to "Larchfield," for Miss E. S. Wing. Mr. W. B. Stonebridge, architect Woburn Sands and Bedford:—
S. Foster, Kempston* ... £254

BIRTLEY.—For making-up twelve private streets, for the Chester-le-Street Rural District Council. Mr. G. W. Ayton, Highway Surveyor, Chester-le-Street:—

—	Section 1. Nos. 1 to 9A.	Section 2. 10A, 11, 12.	Drains.
	£ s. d.	£ s. d.	£ s. d.
J. Burnett & Son	*871 2 8	524 7 8	113 19 0
J. W. Henderson	894 11 6	*429 14 8	113 3 0
G. E. Simpson	922 18 5	451 0 5	122 10 0
J. W. White	960 15 10	435 7 2	122 0 0
J. Thompson & Son	970 17 10	514 17 8	141 7 6
J. Carrick	1,033 14 6	529 10 6	94 4 3
R. Hudson & Sons	1,078 2 11	512 12 11	126 18 0
J. Hope	1,099 10 2	544 2 8	128 16 1
J. W. Robson	1,099 17 5	464 2 3	127 2 2
G. Pickering	1,123 19 6	483 8 4	132 16 8
J. Clark & Son	1,154 3 2	475 1 0	114 5 5
C. S. Bunch	1,192 12 11	526 11 8	124 7 9

BURSLEM.—For fencing, etc., Cobbridge Pleasure Grounds, for the Corporation. Mr. F. Bettany, Borough Surveyor and Engineer, Municipal Offices, Burslem:—
Messrs. Hill & Smith, Brierley Hill* £157 8 3

CASTLE DONINGTON.—For proposed Council school, for the Education Committee. Quantities by Mr. Ernest G. Fowler :—

Griffin Bros.....	£5,265 12	H. H. Garlick ..	£4,836 19
W. F. Harding..	5,210 0	T. Perks & Son, Ltd.....	4,814 0
A. Faulks	5,147 0	W. Moss & Sons, Ltd.....	4,700 0
E. Fox	5,130 0	W. Moss & Son..	4,700 0
J. Cole & Sons..	5,108 0	T. Barlow & Co.	4,628 0
T. Barker & Sons	5,050 0	J. Brown & Son	4,624 0
W. Corah & Son	4,995 0	F. Sleath, Rotherley*.....	4,622 15
A. J. Wileman ..	4,975 0		
Bradshaw Bros..	4,953 0		
J. Chapman	4,910 0		

ENFIELD.—For certain new water-closets and slop sinks and fixing, at the Chase Farm Schools, Enfield, N., for the Guardians of the Edmonton Union. Mr. Stuart Hill, architect, 106, Cannon-street, E.C. :—

J. Thomas	£374 0	A. Porter.....	£251 0
W. Pavey & Son..	327 0	W. Watkin & Son	233 12
E. G. Brown	299 7	A. Monk*	195 0
Fitch & Cox.....	294 0		

HOCKLIFFE (Beds).—For new roof to tower of parish church, and repairs to bellchamber. Mr. W. B. Stonebridge, Diocesan Surveyor, Bedford and Woburn Sands :—

J. Sharrett	£134 0	J. Ayre & Son ..	£112 10
C. Sinfield.....	123 0	T. Yirrell.....	99 0
H. Edwards & Sons	115 10	A. W. Nash, Dunstable	98 10

JARROW.—For erecting a secondary school, for Durham County Council. Mr. F. Rennoldson, Architect, 37, King-street, South Shields :—

J. Lumsden, Jarrow £15,600

KEYNSHAM.—For drainage works at the workhouse, for the Guardians. Mr. H. M. Bennett, architect and surveyor, Old Bank-chambers, Corn-street, Bristol :—

J. Willcox & Sons, Keynsham, Bristol* .. £114

[There were twelve other tenders, the highest of which was £247.]

MACCLESFIELD.—For (1) new bakery, bathhouse, and lavatories, etc.; (2) bakery plant, etc., for the Guardians. Messrs. Whittaker & Bradburn, architects, 19, King Edward-street, Macclesfield :—

For Building.

Gorton & Wilson, Elizabeth-street, Macclesfield.. £1,390

For Oven and Plant.

Masons, Ltd., Levenshulme, Manchester £363 11

NEW WASHINGTON.—For making-up thirty-five private streets, for the Rural District Council of Chester-le-Street. Mr. G. W. Ayton, Highway Surveyor, Chester-le-Street. Quantities by Surveyor :—

J. Trainer ..	£3,020 5 0	J. Clarke & Sons	£2,348 5 5
J. Carrick ..	2,720 9 0	G. E. Simpson	2,298 17 8
R. Hudson ..	2,640 1 4	J. W. Henderson	2,287 10 0
J. Hope	2,466 8 1	J. W. Robson*	2,265 6 10
J. W. White..	2,366 0 0	R. Fisher ..	2,080 13 5
C. S. Bunch..	2,356 12 6		

PORTSMOUTH.—For pulling down existing offices and erecting new ones in the girls' and infants' playground at Stamshaw Council School, for the Education Committee. Mr. A. H. Bone, Surveyor, Cambridge Junction, Portsmouth :—

Barnes, Ltd..	£1,199 0 0	Pryer & Sons	£1,065 15 9
A. Light	1,151 10 0	J. Crockerell .	1,029 0 0
S. Salter	1,118 0 0	F. J. Privett	967 0 0
J. Tanner ..	1,100 0 0	H. Jones & Son, Portsmouth* ..	943 0 0
G. A. Gumbleton	1,078 1 5	H. Buckett ..	930 0 0
E. Bayly....	1,074 11 10		

SANDOWN (Isle of Wight).—For sewerage works, for the Urban District Council. Mr. Leslie G. Dashper, Surveyor. Quantities by Surveyor :—

Retaining Tank.

J. Attrill	£1,701 5 0
W. Brown, Windsor House, Fitzroy-street, Sandown*	1,350 0 0

Outfall Sewer.

W. Brown, Sandown*	800 0 0

Sewer, Avenue-road,

J. Attrill	182 7 6
W. Brown, Sandown*	150 0 0

SOUTHERY.—For repairs to existing farm buildings and erecting new sheds, Peckett's Fen Farm, Southery, for the Norfolk County Council Small Holdings Committee :—

J. W. Collins	£210 2 6
G. Porter	197 12 0
F. W. Ashby, Ltd., Downham Market*	188 8 6

WALGRAVE. — For new Council school, for Northamptonshire Education Committee. Messrs. Law & Harris, architects, 1, Sheep-street, Northampton. Quantities by the architects :—

Goodman & Murkett	£2,596	Beardsmore & West	£2,379
W. Heap	2,569	A. P. Hawtin.....	2,379
C. Andrew	2,540	E. D. Sharman & Son	2,345
T. Higgs	2,487	E. Brown & Son ..	2,325
R. Marriott	2,480	T. Hickman	2,295
H. Martin, Ltd.....	2,480	Sharp & Robinson, Earls Barton‡ ..	2,285
E. Green.....	2,459		
T. Heath	2,396		

‡ Accepted subject to the approval of the Local Government Board.

WOLBOROUGH.—For cemetery works, Contract No. 1, boundary walls, etc., for Newton Abbot Urban District Council. Mr. Coleridge D. White, Surveyor, Town Hall, Newton Abbot :—

J. H. Pomroy	£1,977 11 3	H. C. Jackman	£1,386 5 1
Parker Bros...	1,622 13 6	L. Bearne, Newton Abbot*	1,424 7 0
F. Stacey	1,530 0 0		

WOLBOROUGH.—For cemetery works, Contract No. 2, sexton's lodge, etc., for Newton Abbot Urban District Council. Mr. Coleridge D. White, Surveyor, Town Hall, Newton Abbot :—

Pomroy	£814 1 4	Jackman	£497 14 3
Parker Bros....	517 1 1	Bearne, Newton Abbot*	488 11 4
Stacey	495 0 0		

WOLBOROUGH. — For cemetery works, Contract No. 3: mortuary chapel; for Newton Abbot Urban District Council. Mr. Coleridge D. White, Surveyor, Town Hall, Newton Abbot :—

Pomroy	£1,001 3 2	Jackman	£777 5 10
Parker Bros.	915 15 0	Bearne, Newton Abbot*	788 3 0
Stacey	910 0 0		

WYCOMBE. — For erecting a pair of villas, Desborough-avenue, for Messrs. Beckford Brothers. Mr. F. B. Hooper, architect, High Wycombe and Great Marlow. Quantities not supplied :—

T. Hopkins	£770	A. W. Morton & Sons	£548
W. H. Siarey	648	G. H. Gibson & Sons.	527
C. Jefferson	615	F. Clarke	510
F. Chapman	570	B. W. Martin, Wycombe*	462
J. Nash & Sons.....	560		

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London Agent:—Mr. E. A. Williams, 16, Craven-street, Strand.

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